Sankyo

EM-40XL
EM-60XL

INSTRUCTIONS FOR USE

Thank you for purchasing a Sankyo EM-60XL/EM-40XL camcorder. This camcorder is characterized by the introduction of the latest technological innovations in a surprisingly compact, lightweight, and stylish body. For example, an integrated circuit timer has been incorporated into the camera to allow for frame-by-frame shooting at preset intervals and to act as a self-timer without the need for additional equipment. In addition, the camera is equipped with an electromagnetic shutter release that allows the use of various optional accessories.

- Green color-coded positions for quick identification of normal control and switch settings.
- Built-in integrated circuit timer for various special effects techniques.
- Optional accessories that increase the camera's versatility include: a radio remote control, a wired remote control, and a timer.
- XL features for indoor shooting in low light
- The variable focal length lens with macro allows for very close-up shots without additional accessories.
- Slow-motion shooting is possible at a rate of 36 frames per second.
- Flash synchronization is possible for frame-by-frame shooting.

Your new camera offers exceptional possibilities: please read this instruction manual carefully to familiarize yourself with its operation before you begin shooting.

We wish you excellent Super 8mm film shooting with your EM-60XL or EM-40XL.

Some precautions to take

- Remember to switch the power switch to the OFF position when the camera is not in use to conserve battery power.
- If the camera is to remain unused for several weeks, it is best to remove the batteries, as accidental leakage may damage the camera's internal components.
- Insert the batteries correctly; otherwise, a short circuit may occur
- Check the polarity of the power cord when using the external 6V power supply. The polarity is negative (-) in the center of the plug and positive (+) around the perimeter.
- Wipe the film gate occasionally with a soft, dry cloth.

Note:

This instruction manual applies to two camera models: the EM-60XL and the EM-40XL. The operation of these two cameras is virtually identical. The illustrations generally depict the EM-60XL, but any differences between the two models are always clearly indicated, and non-common features are always identified by the model number. When reading this instruction manual, verify that the information provided applies to the camera you purchased

NOMENCLATURE OF COMPONENTS AND THEIR FUNCTIONS

Camera torch holder

Zoom ring

Focus ring

Alignment mark For focusing and adjusting zoom

focal length.

EM-60XL zoom lens: 6X (f/1.2; f = 7.545 mm) EM-40XL zoom lens: 4X (f/1.2; f9.237 mm)

Front lens mark For cine-macro photography

Zoom lever

Macro shooting switch Pull out and rotate before macro shooting

Electric zoom lever Push up for wide-angle position, down for telephoto position

Flash sync socket
For connecting an electronic flash for frame-by-frame shooting

Accessory shoe
Allows attachment of exclusive camera accessories such as the radio remote control block or the Universal Timer

Viewfinder eyecup
Also serves as an adjustment ring viewfinder diopter

Viewfinder diopter adjustment locking ring

-Viewfinder shutter position adjustment knob

-Backlight compensation lever
Also serves as an automatic fade control lever

Manual or automatic aperture control knob

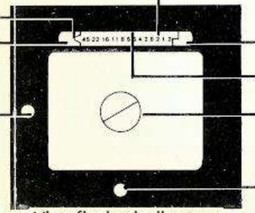
Film advance counter

Special effects selector
Three operating modes: intermittent timer, self-timer, and frame-by-frame shooting.

Function switch
BATT: battery status check; OFF: power off;

18: normal frame rate shooting; 24: 24 frames/second shooting;
36: 36 frames/second slow motion shooting

-Power indicator
Also serves as a battery status indicator



Aperture scale

Fade-to-black mark

Overexposure mark

Underexposure mark

Aperture indicator

Auto fade indicator light

Split-frame focusing circle (single-lens meter)

Film advance indicator light

Viewfinder indicators

Remote control (REM) socket
For connecting a wired remote control unit, a radio remote control unit, or a timer (all three sold separately)

External DC power socket
For connecting an external DC power supply (sold separately)

Side cover release button
Push back

Film identification window

Side cover

Film plane mark

Built-in filter position control Retracts or
reinstalls the built-in filter

Shutter release
Electromagnetic

-Retractable handle release button

Tripod mounting nut

-Retractable handle

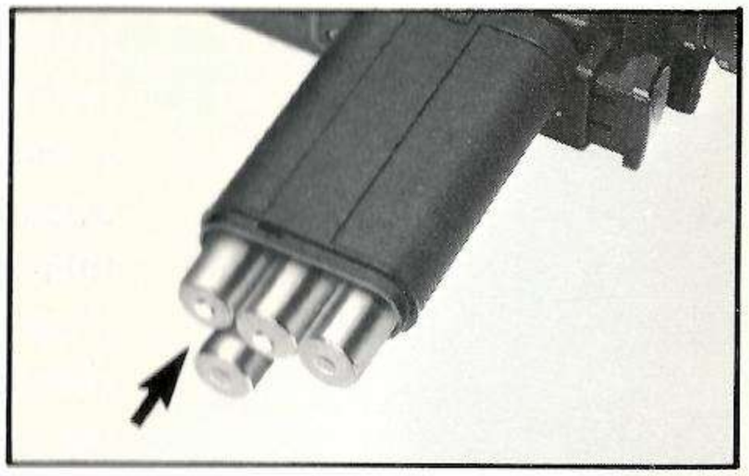
-Battery compartment cover

CONTENTS

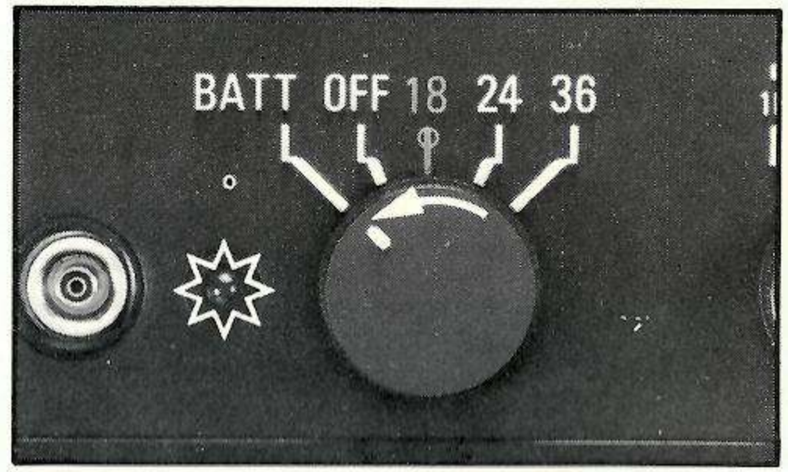
NOMENCLATURE OF COMPONENTS
AND THEIR FUNCTIONS . . . . . Leaflet
PRINCIPLE OF OPERATION 2
BASIC FUNCTIONS
1. Inserting the Batteries 4
2. Checking the Battery Status 5
3. Loading and Unloading Film 5
4. Aperture Control 7
5. Adjusting the Viewfinder to the User's Visual Acuity 9
6. Focusing 10
7. Shooting 11
8. Using the Focal Length 12
9. Checking the Filter Position 13
10. Automatic Fade 14
11. Shooting with Special Effects 14
12. Cinema Macro Photography 17
13. Tripod Mounting 19
14. Remote Shooting 20
15. Power Supply from an External Source DC 21
SHOOTING TECHNIQUES 22
DEPTH OF FIELD CHARTS 32
TECHNICAL SPECIFICATIONS 34
MAINTENANCE 35
COMPLETE CONNECTION DIAGRAM. 36
ACCESSORIES 37

PRINCIPLE OF USE

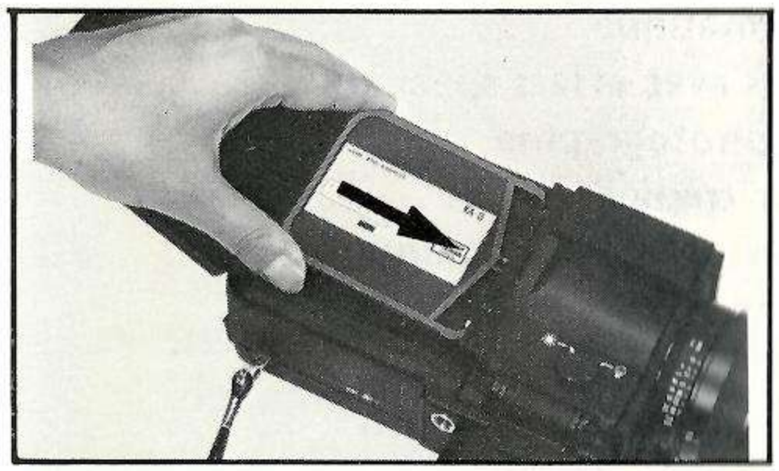
To facilitate camera operation, the basic settings of the controls and switches are identified by the color green. A quick glance indicates the operations to be performed.



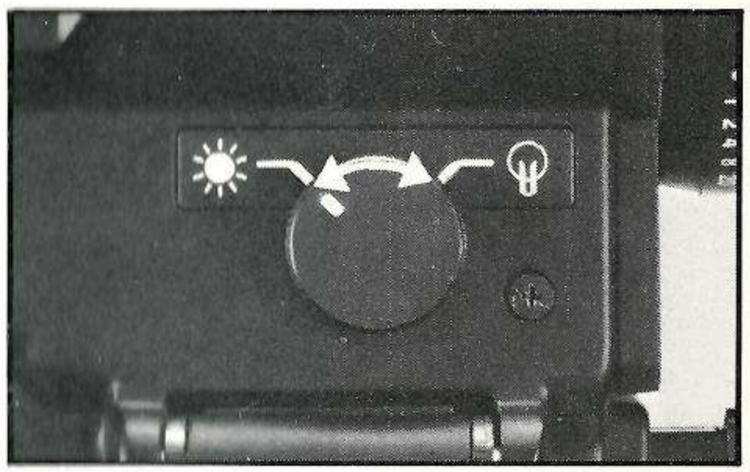
1 Insert the batteries. (See page 4)



2 Check the battery status. (See page 5)

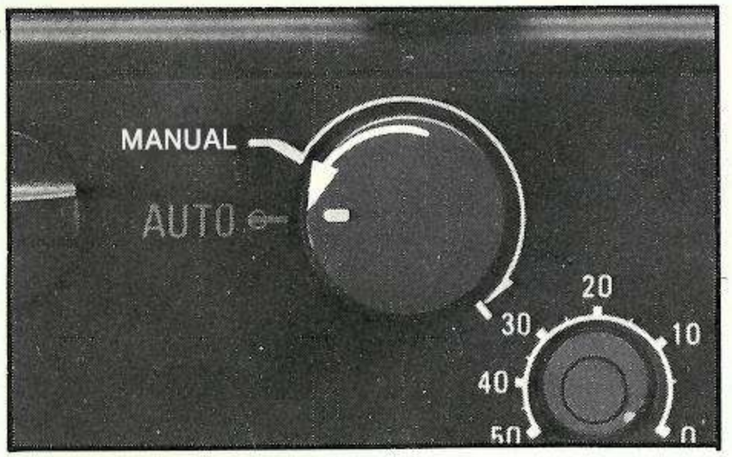


6 Insert a charger into the camera. (See page 5)

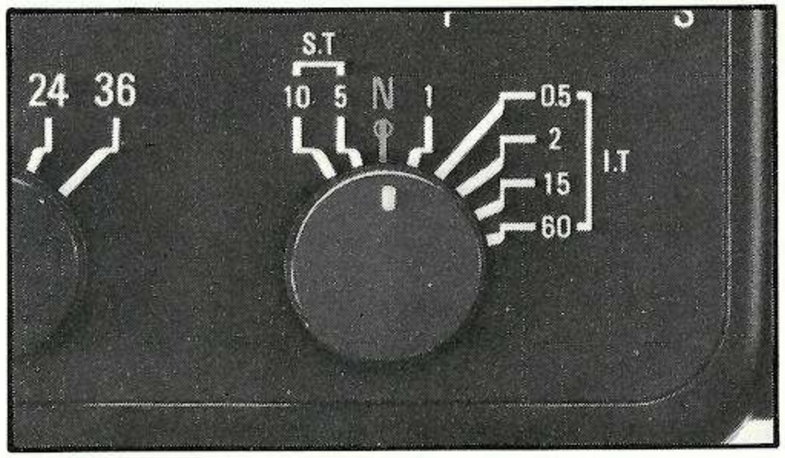


7 Check the setting of the built-in filter position control knob. (See page 13)

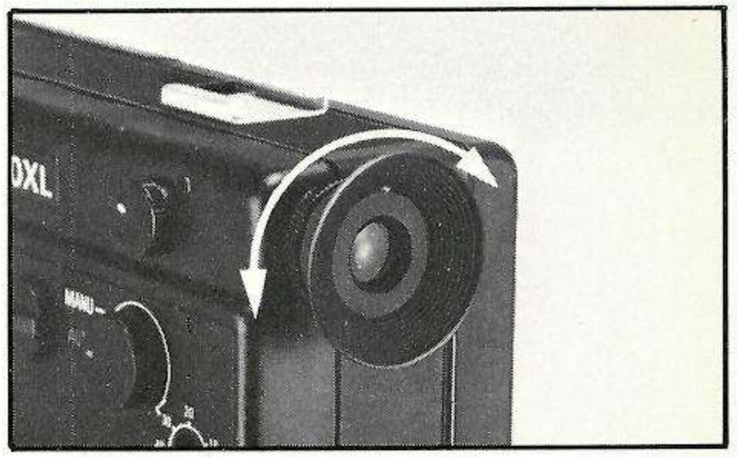
8 Set the function switch to the "18" position



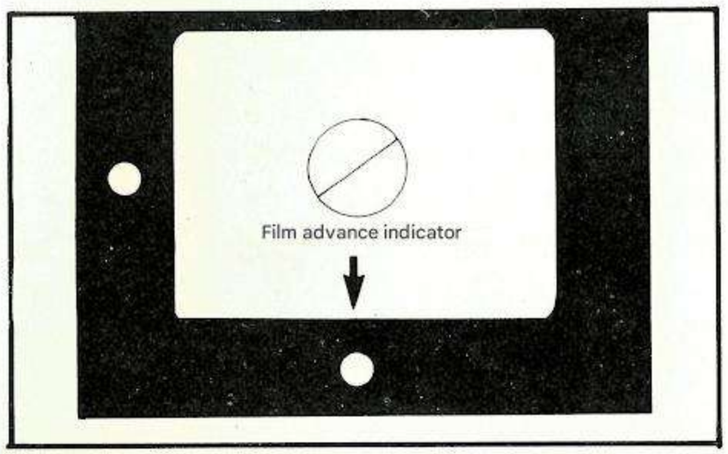
3 Set the aperture control knob to the AUTO position.



4 Set the special effects selector to the N (neutral) position.

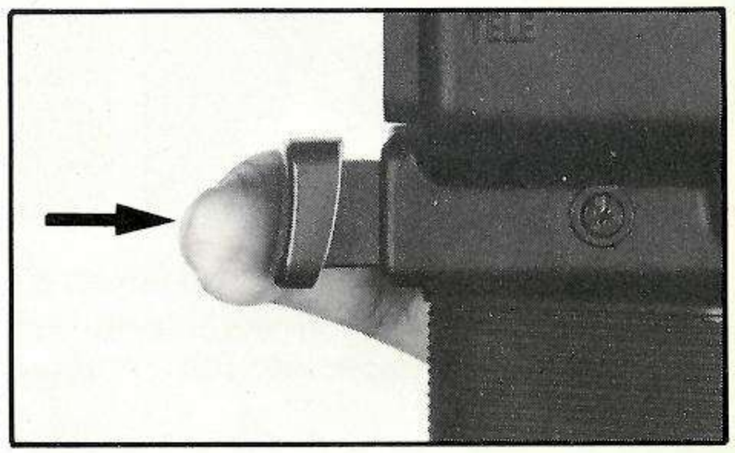


5 Adjust the viewfinder according to the user's visual acuity. (See page 9)



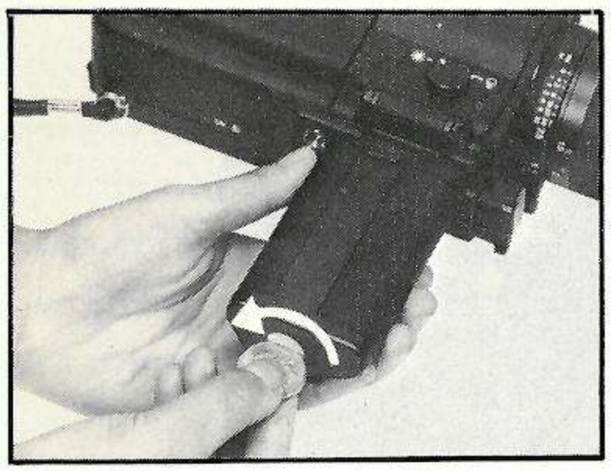
9 Check the film advance. (See page 6)

10 Achieve focus. (See page 10)



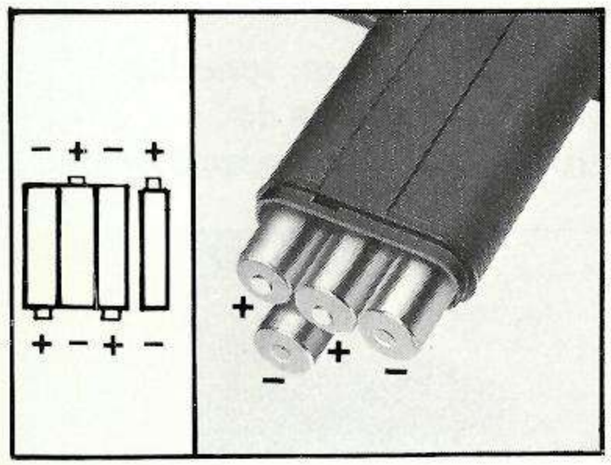
11 To start filming, press the electromagnetic shutter release

1 INSTALLING THE BATTERIES



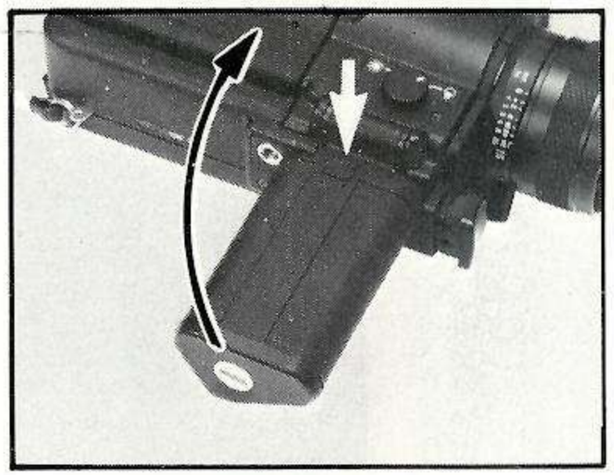
1. Using a coin or similarly shaped object, turn the battery compartment locking screw located under the handle to the "0" (open) position.

2. Remove the battery compartment cover.



3. Insert four AA batteries into the compartment as shown in the diagram printed on the handle. Alkaline batteries are recommended due to their superior performance.

4. Replace the battery compartment cover and turn the locking screw to the "C" (closed) position

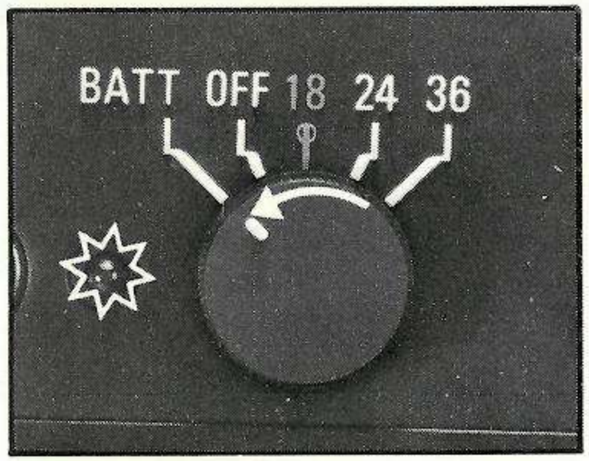


The batteries can be inserted into the handle regardless of its position, folded or unfolded. To unfold the handle, rotate it on its hinges until it locks. To fold it, rotate it in the opposite direction while pressing the handle release button.

* Take care to insert the batteries correctly. Otherwise, energy loss may occur, which could damage the camera.

* To conserve battery power, always return the power switch to the OFF position when the camera is not in use

2 BATTERY STATUS CHECK



1. Set the function switch to the BATT position. The battery status indicator light will illuminate if the batteries are sufficiently charged.

2. When the switch is released, it will automatically return to the OFF position.

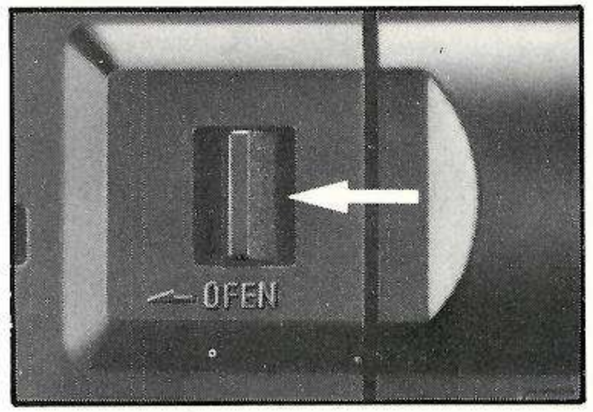
If the battery status indicator light does not illuminate, replace the batteries. Always replace all four batteries at the same time. The batteries must also be replaced if the battery status indicator light illuminates briefly when the function switch is set to the BATT position, but does not remain illuminated when the switch is held in this position.

* Remember to check the battery status at regular intervals.

- In very cold weather, the power produced by batteries, even new ones, is sometimes insufficient. In this case, warm the batteries (by placing them in a pocket, for example) before starting to film

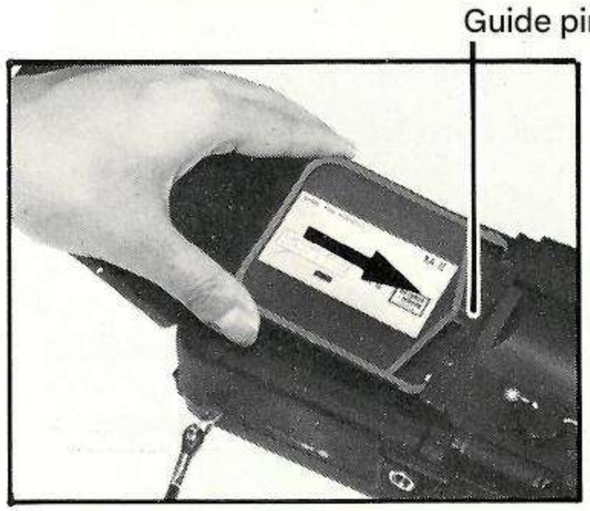
- Do not change the function switch setting while the electromagnetic shutter release is in the pressed position.

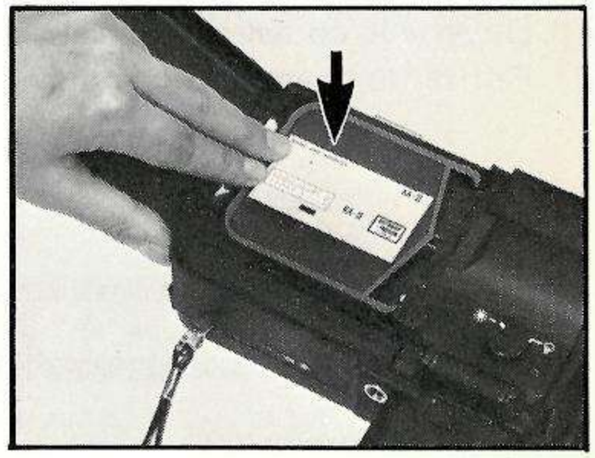
3 LOADING AND UNLOADING FILM



Loading Film

1. Open the side cover by pushing the release button to the rear (OPEN).

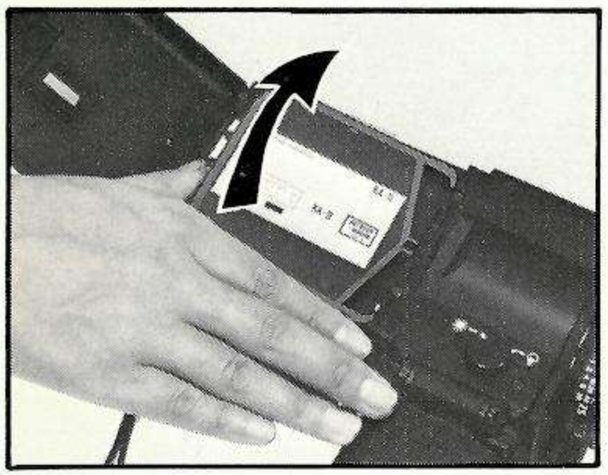




2. Insert a Super-8 film magazine.
   Align the camera's guide pin with the magazine's guide slot, and gently press the magazine in.
3. Close the cover.
   The sensitivity is automatically adjusted according to the film speed.

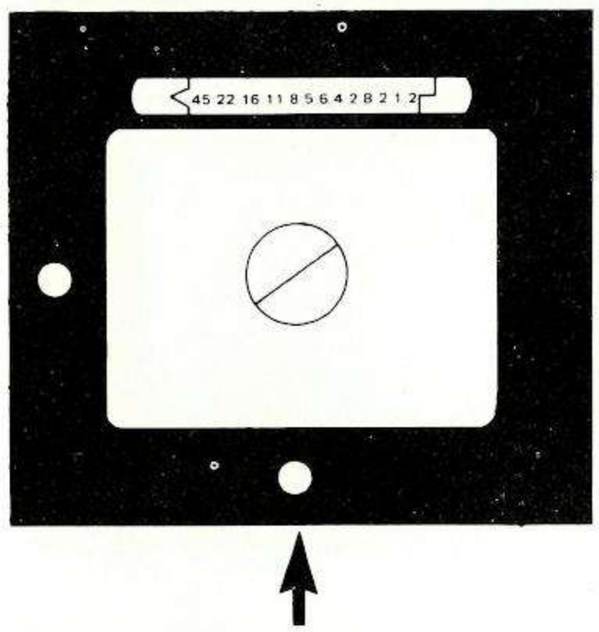
Once a film magazine has been inserted, do not operate the camera until the cover is closed

Unloading the Film



1. Open the side cover.
2. Remove the film magazine by lifting it from the rear.

Film Advance Indicator



Film Advance Indicator

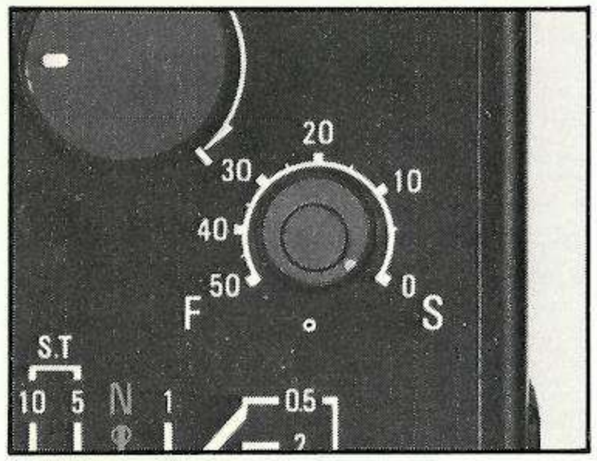
The film advance indicator is a flicker appearing in a circular light located below the image in the viewfinder. A continuous flicker when the electromagnetic shutter release is pressed means that the film is advancing without problems.

Film is advancing	A flicker appears
Film has reached the end of its travel	No flicker
Film advance has stopped	No flicker

If the film was not loaded correctly, no flicker will appear in the viewfinder light. In this case, repeat the loading procedure from the beginning

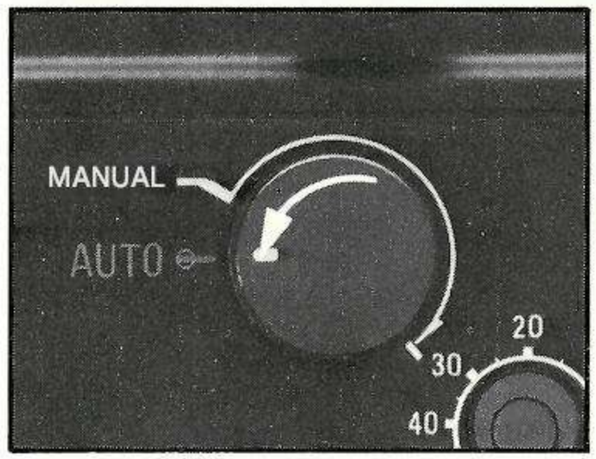
4 APERTURE CONTROL

Film Advance Counter



The white mark indicates the length of film that has already been used. When the film holder is removed, the counter automatically resets to zero.

Auto Control



- Set the aperture control knob to the "AUTO" position.

Under normal shooting conditions, this setting provides the correct exposure every time.

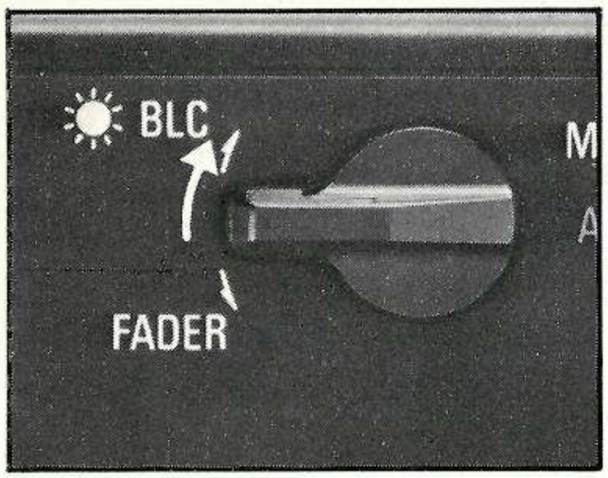
- If the film holder is removed before the end of the film, the film advance counter automatically resets to zero. If the film holder is then reinserted to use the remaining unexposed film, the counter reading will no longer correspond to the length of film actually used.

- the film advance indicator stops flashing before the counter reads "50," it indicates abnormal operation of the film holder or camera. In this case, contact your dealer.

Exposure Defects and Solutions

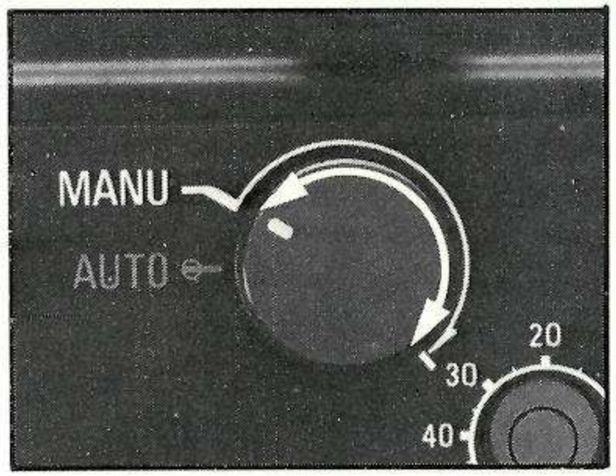
45 22 16 11 8 5.6 4 2.8 2 1.2	45 22 16 11 8 5.6 4 2.8 2 1.2
Underexposure	Overexposure
The aperture indicator in the viewfinder enters the right red zone.	The aperture indicator in the viewfinder enters the left red zone.
Use a flashlight.	Use neutral density filters. Filter size: M52 x 0.75

Backlight Compensation



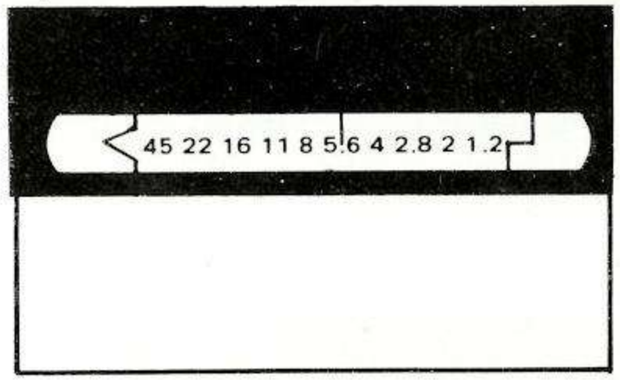
To film a backlit subject, push up the backlight compensation lever. The film exposure will automatically increase to provide correct exposure of the backlit subject. The exposure returns to its normal value when the lever is released.

Manual Control



- Set the aperture indicator needle to the desired value by rotating the aperture control knob in the "MANU" zone.

Tips for Accurate Manual Control Use



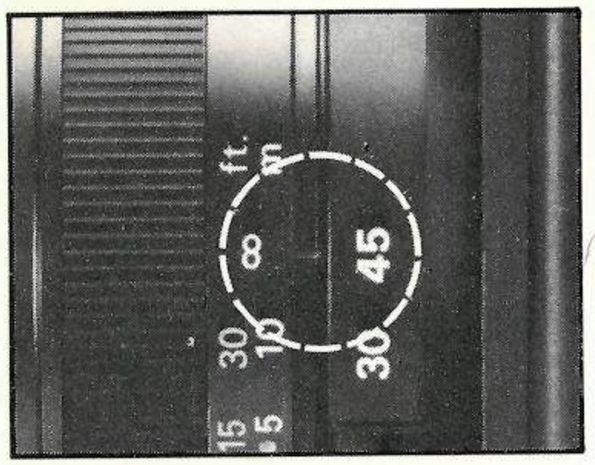
1. Set the aperture control knob to the "AUTO" position.

2. Move the camera closer to the subject and note the aperture indicated on the aperture scale

3. Return the camera to the shooting position and manually set the aperture to the value noted previously.

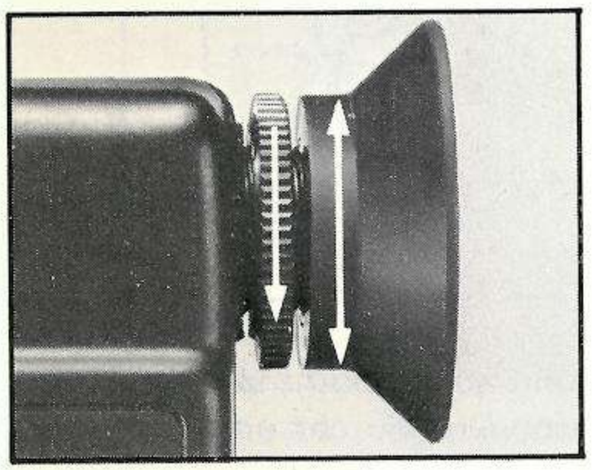
Manual control is recommended when the subject is backlit, when there is a strong contrast between the subject and background, or when special effects are desired

5 ADJUSTING THE VIEWFINDER ACCORDING TO THE USER'S VISUAL ACUITY



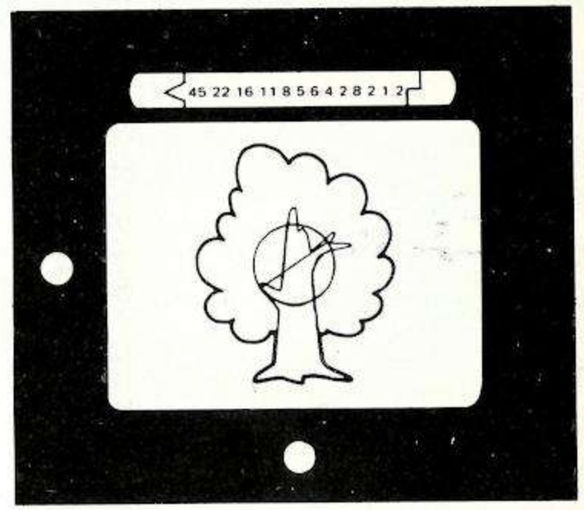
1. Set the zoom ring to the maximum telephoto position.

   EM-60XL: 45 mm
   EM-40XL: 37 mm
2. Set the focus ring to infinity (∞).



3. Loosen the viewfinder diopter adjustment locking knob by rotating it counterclockwise. Then, make the adjustment by rotating the viewfinder eyecup.

Adjust the diopter ring so that a subject at a distance of at least 150 meters and the center line of the cutaway rangefinder are visible as clearly as possible in the viewfinder. Ensure that the two halves of the focus circle are perfectly aligned with each other. If not, correct the focus using the diopter ring.



4. When the diopter adjustment is complete, turn the locking knob clockwise to tighten it

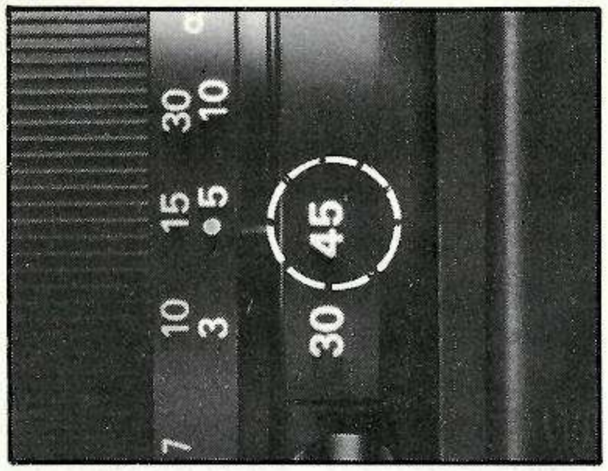
To check the viewfinder adjustment, set the focusing ring of the front lens to the distance between the camera and any subject, after estimating this distance. Set the zoom ring to the Tele position. The subject should appear clearly in the viewfinder. Perform the same check for different distances to ensure the viewfinder adjustment has been made correctly. Remember that if this adjustment is incorrect, focusing the front lens becomes impossible.

The viewfinder is completely obstructed when the shutter is closed; therefore, first set the viewfinder shutter open/close button to the "0" (open) position.

IMPORTANT NOTE
THE ABOVE METHOD IS THE ONLY VALID METHOD FOR ADJUSTING THE VIEWFINDER ACCORDING TO THE USER'S VISUAL ACUITY

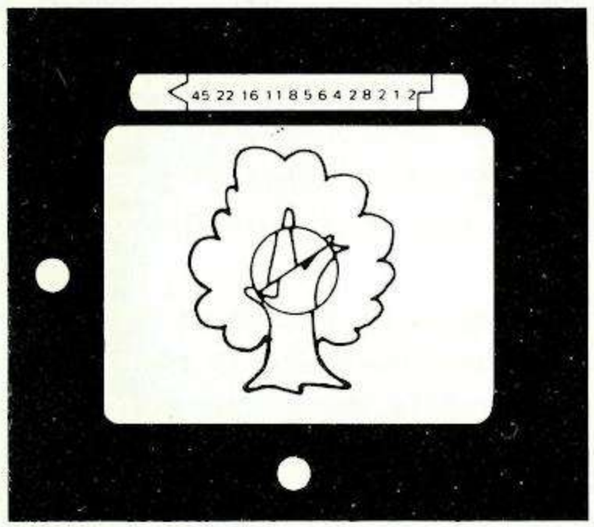
6 FOCUSING

Split-field focusing system (stigmometer)

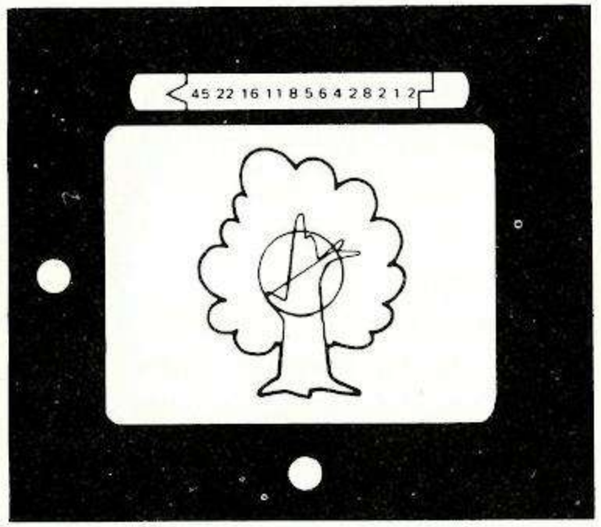


1. Set the focal length ring to the maximum telephoto position.

2. Adjust the focusing ring so that the two halves of the image in the stigmometer circle are perfectly aligned with each other.



Not in focus



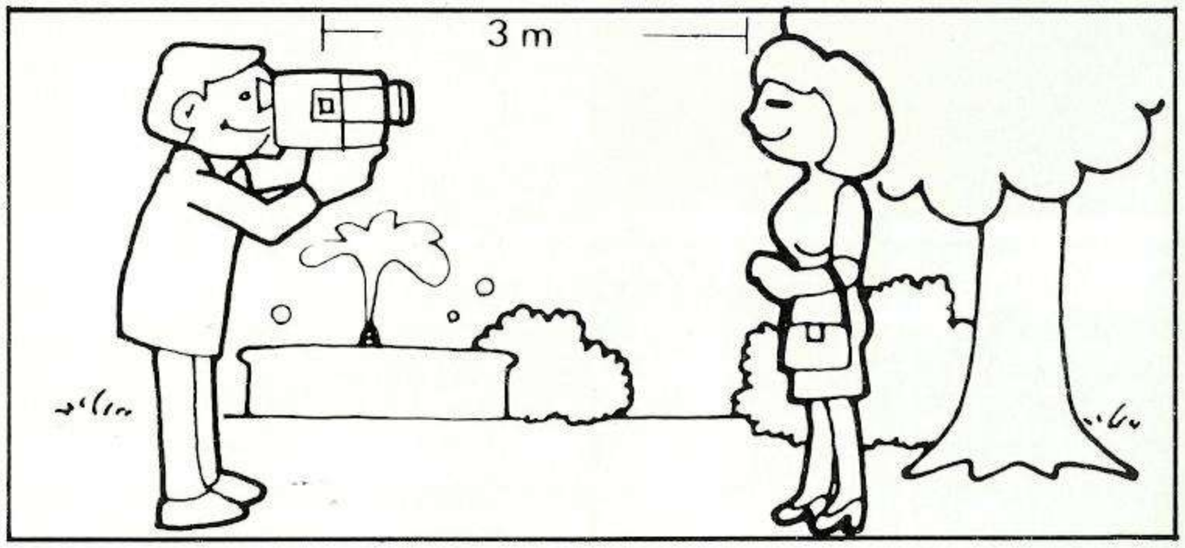
In focus

FOCUS MUST ALWAYS BE MADE IN THE TELEPHONE POSITION.

For focusing in macrophotography, refer to the chapter "CINE-MACROPHOTOGRAPHY", pages 17, 18 and 19.

Focusing by evaluation

1. Measure or estimate the distance between the subject to be filmed and the camera (marked $)
2. Set the focus ring to the value found.



Universal Focus

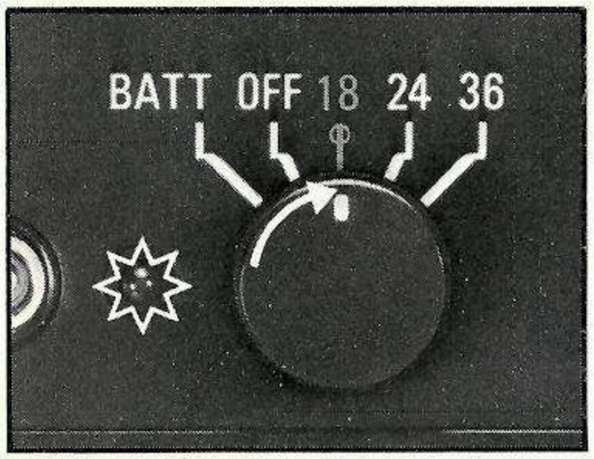
- Set the focus ring to the green dot (). Because this method is based on depth of field, the aperture must be at least f/5.6. This method can be used when there is not enough time to focus (when shooting documentaries, for example). Universal focus gives excellent results in most natural light shooting situations.

The universal focus method, which gives good results due to the large depth of field achieved, cannot be used when the lens is set to the maximum telephoto position.

For good focus, the settings indicated by the green line are the most suitable

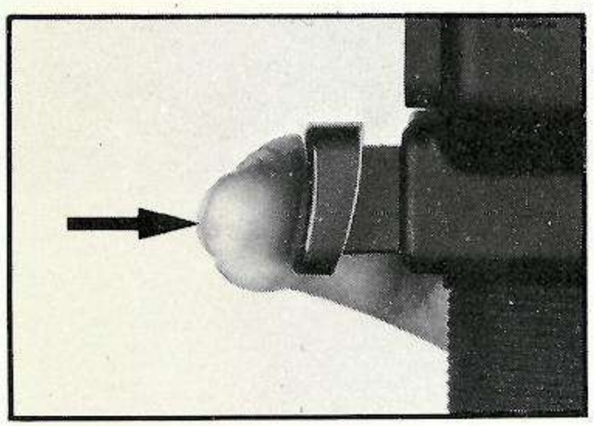
7 SHOOTING

Normal Frame Rate Shooting



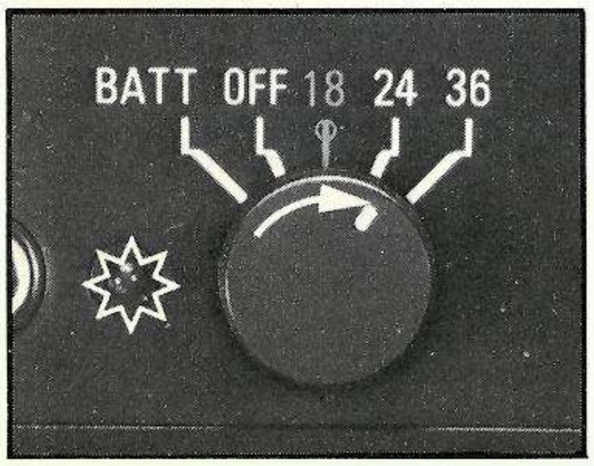
1. Set the function switch to the "18" position.

   The power indicator light will illuminate when this is done.



2. Press the shutter release.

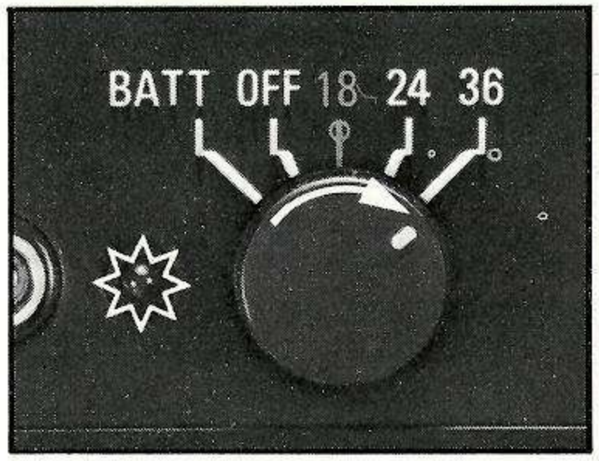
24 Frames/Second Shooting



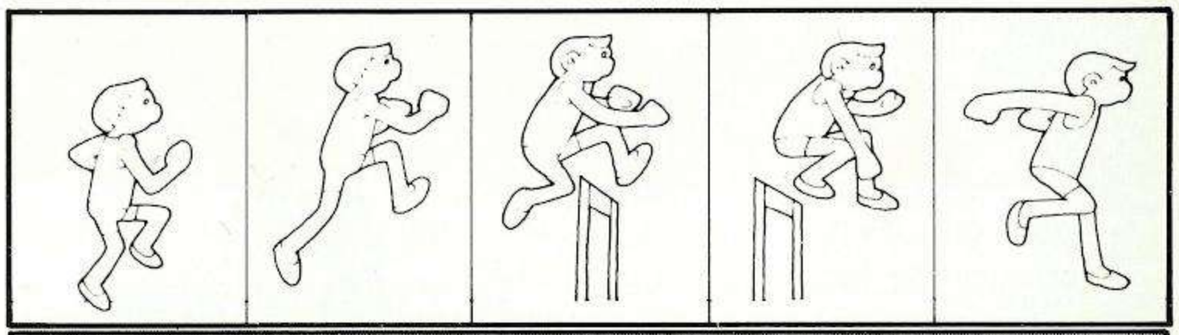
- Set the function switch to the "24" position.

If you have a projector equipped with a sound recording device, you can add a soundtrack to a film that has already been shown. In this case, the sound quality is superior when using a shooting speed of 24 frames/second.

36 Frames/Second Shooting



A shooting speed of 36 frames/second allows for slow-motion filming, which can be used, for example, to break down an action, particularly in sports



* The power indicator remains lit when the function switch is set to a position other than OFF.

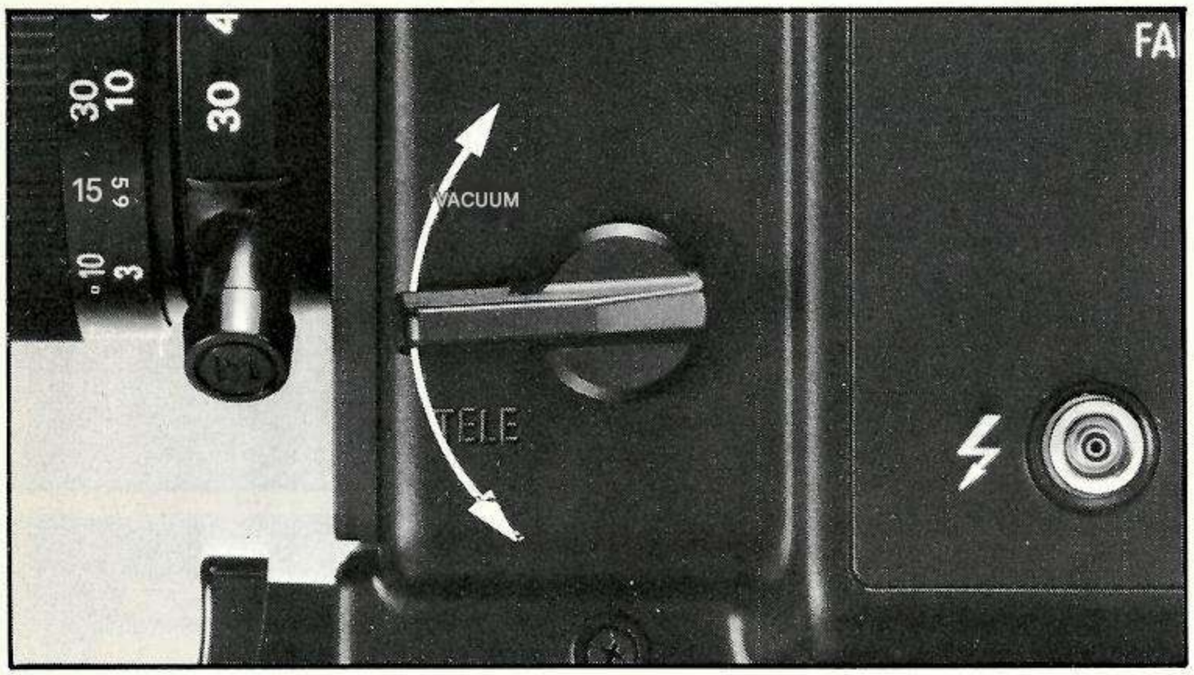
* When the function switch is set to OFF, all electrical components of the camera are disabled.

* Do not change the function switch setting while shooting, as this may damage the film.

* Avoid pressing the shutter-release button repeatedly and rapidly when a film magazine is in the camera, as this may cause the film advance mechanism to malfunction

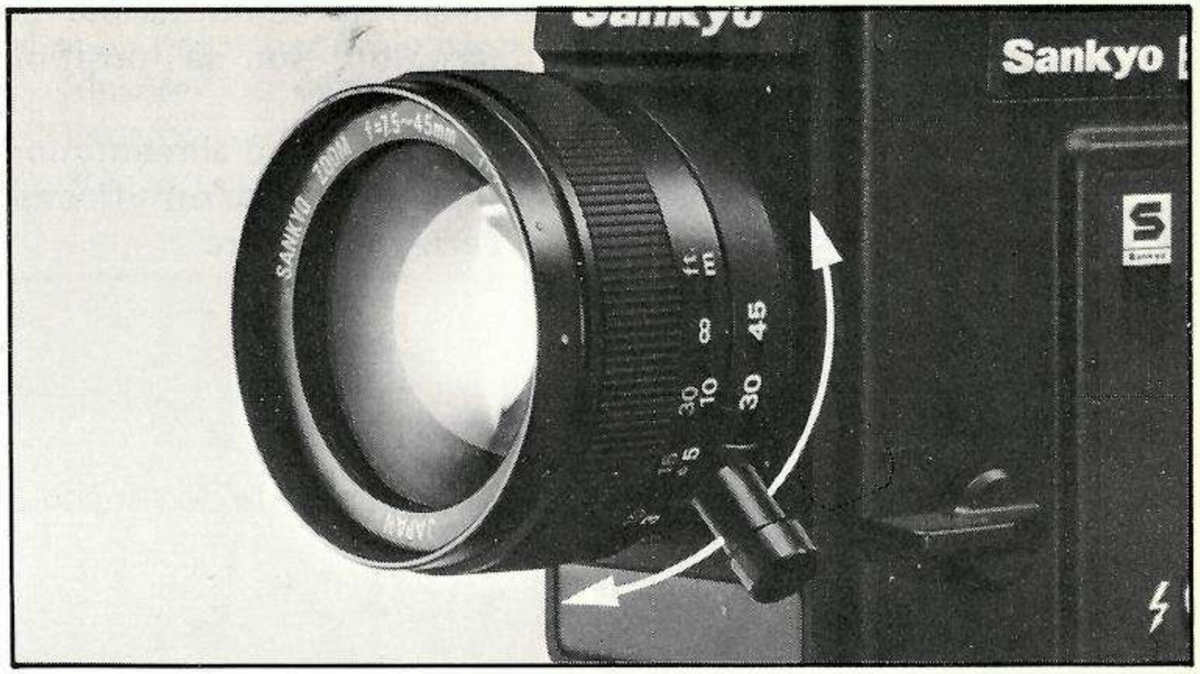
8 USING THE FOCAL LENGTH VARIATION

Electric Control



- To bring the image closer: press down on the focal length variation lever (TELE position).
- To move the image further away: push up on the focal length variation lever (WIDE - wide-angle position).

Manual Control



- Rotate the focal length variation ring using the manual adjustment lever

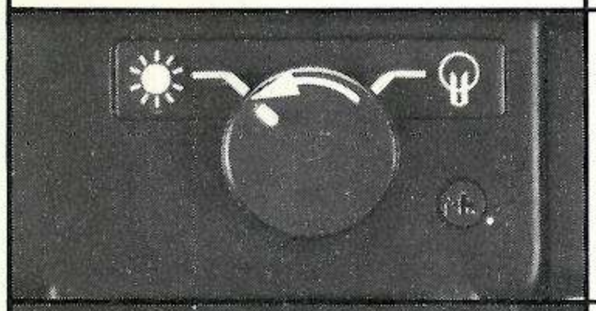
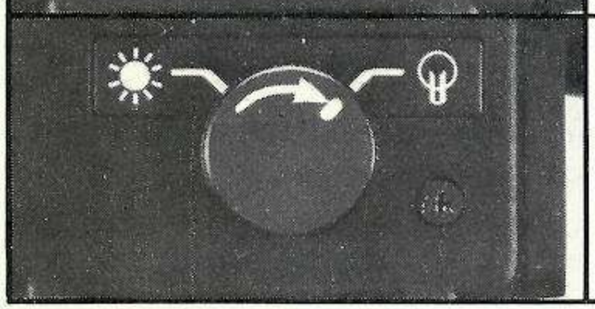
Electric control of the focal length variation is only possible when the electromagnetic shutter release is pressed.

S FILTER POSITION CONTROL

The built-in filter position control knob allows you to retract or replace the built-in Type A filter (Color Compensation Filter for Type A Color Film).

☀ . . . . . Filter in Place

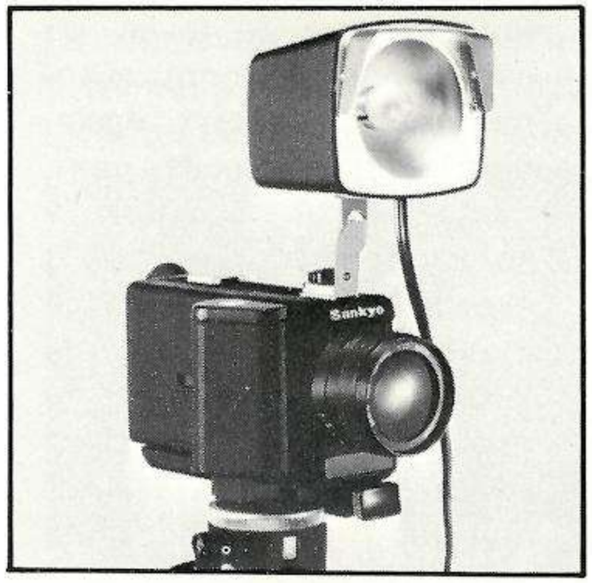
🔌 . . . . . Filter Retracted

Filter Position Control Knob	Lighting
	• Sunlight • Fluorescent Light • Blue Light
	• Artificial Tungsten Light • Cinema Light

Type "G" Film

Type "G" film does not require color compensation under any lighting conditions. With type "G" film loaders, the built-in filter retracts automatically, and the filter position control knob is rendered inoperative.

Cinema Light

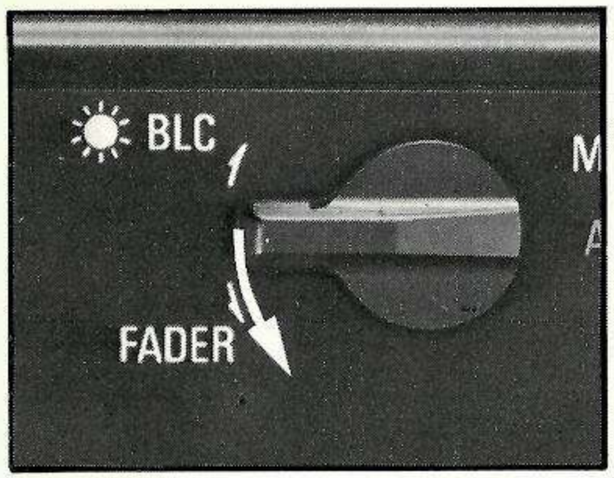


The cinema light screws onto the bracket on top of the camera. When in place, the built-in filter retracts automatically. However, if the light is mounted on an adapter screwed onto the tripod mounting nut, remember to set the filter position control knob to the

🔌 .

* The film light should be kept a safe distance from the camera to avoid discoloration or deformation of the camera body due to the heat emitted.
* Do not mount the light on the accessory shoe, as it emits intense heat that may damage the camera body

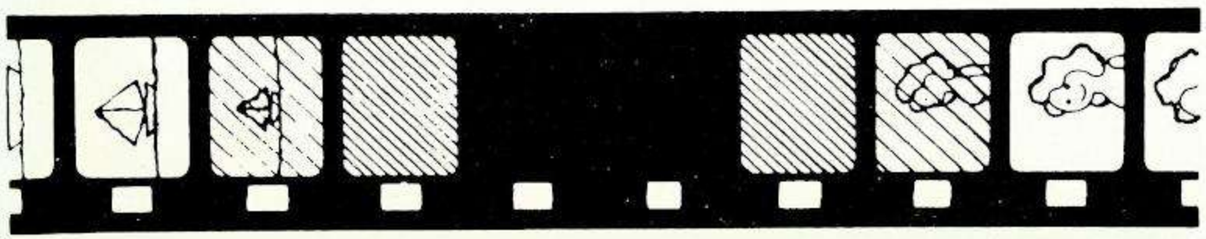
10 AUTO FADE



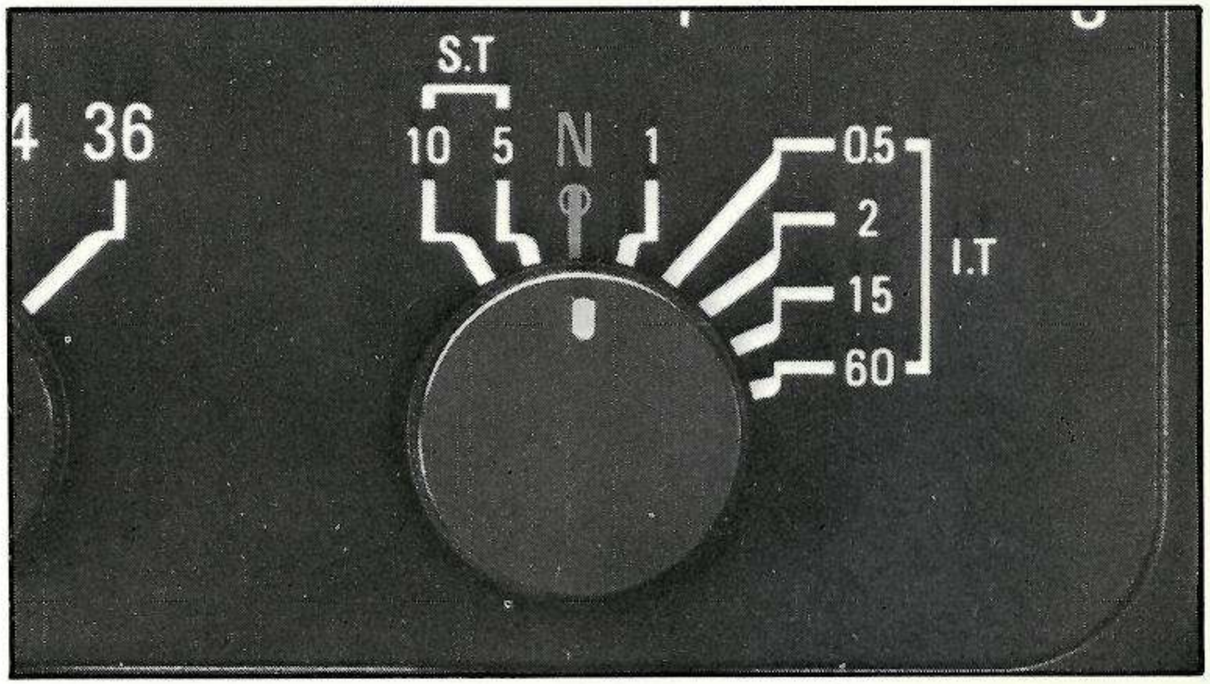
- Push the auto fade control lever (which also serves as the backlight compensation control lever) while filming with the manual or automatic aperture control knob set to the "AUTO" position, as the auto fade only works in automatic mode.

The image gradually fades out over approximately 4 seconds, and the auto fade indicator light (red) illuminates in the viewfinder. When the auto fade control lever is released, the image gradually reappears and returns to its original brightness in approximately 4 seconds. To achieve an aperture fade at the beginning of a film, first push the auto fade lever down; then, after ensuring that the auto fade indicator light is illuminated, press the electromagnetic shutter release and release the auto fade control lever

Fade Out Fade In



11 SHOOTING WITH SPECIAL EFFECTS



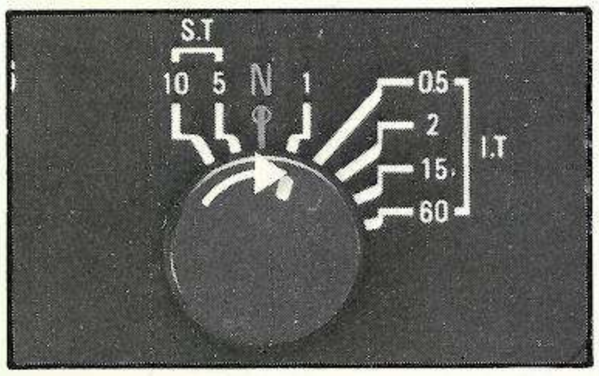
The EM-60XL/EM-40XL camera is equipped with a built-in integrated circuit auto-timer that allows for various special shooting effects. Three operating modes are available: frame-by-frame shooting, interval timer, and self-timer. The operating mode is determined by the setting position of the special effects selector knob.

When using the auto-timer, it is recommended to use the remote shutter release and mount the camera on a tripod.

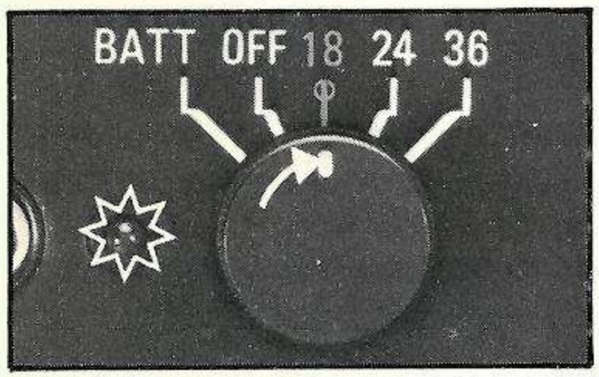
When the auto-timer is not in use, remember to set the special effects selector to the "N" position

Frame-by-frame shooting

Frame-by-frame shooting is very useful for special effects techniques such as titling, animation, or time-lapse filming of extremely slow actions (flowers opening, plants sprouting, etc.).



1. Set the special effects selector to position "1".

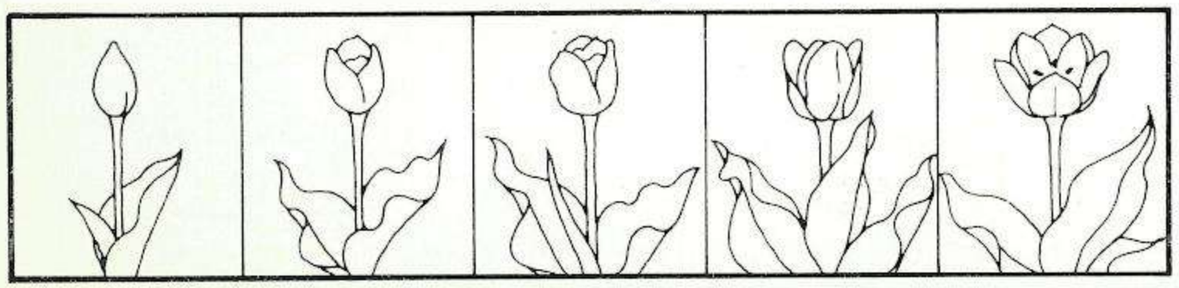


2. Set the function switch to position "18".

3. Set the manual or automatic aperture control knob to the "AUTO" position.

4. Press the electromagnetic shutter release

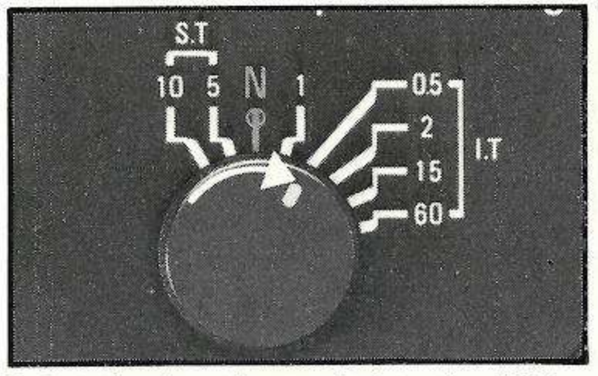
Wired or wireless remote control blocks, sold separately, can be used to remotely control the operation of the electromagnetic shutter release when shooting frame by frame. For details on the wired and wireless remote controls, see pages 20 and 31.



Interval Timer Mode

(IT 0.5, IT 2, IT 15, IT 60)

Interval timer mode allows automatic frame-by-frame shooting at regular intervals of half a second, two seconds, 15 seconds, or one minute.



1. Set the Special Effects Selector to one of the following positions: "IT 0.5", "IT 2", "IT 15", or "IT 60", depending on the desired interval length between exposures

2. Set the function switch to the "18" position.

3. Set the manual or automatic aperture control knob to the "AUTO" position.

4. Close the viewfinder cover by setting its position control knob to "C" (closed).

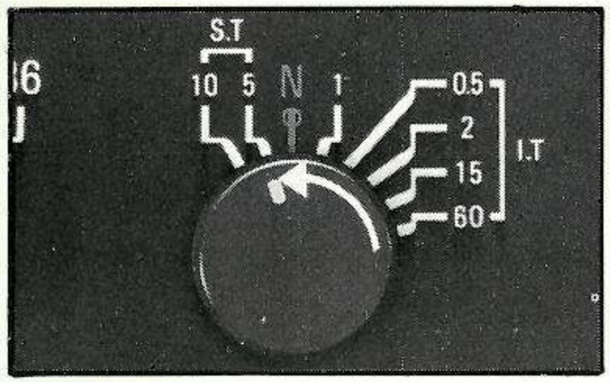
5. Press the electromagnetic shutter release.
   The camera immediately takes a single shot, then automatically repeats the process at regular intervals, the length of each interval depending on the Special Effects selector setting; shooting continues even after the electromagnetic shutter releases.

6. To stop shooting, set the function selector to the OFF position or set the Special Effects selector to the "N" position

For single-frame shooting or interval timer mode, the function switch can be set to position "24" or "36": however, the operation is then identical to that obtained by setting it to position "18".

Self-Timer Mode

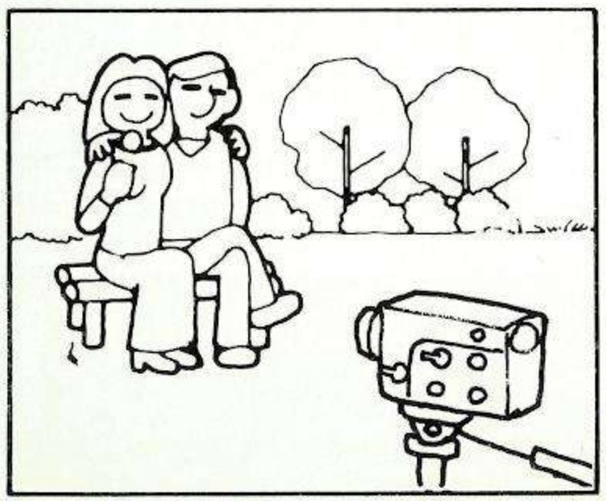
The camera automatically starts after a 10-second delay and stops after 5 or 10 seconds of shooting.



1. Set the special effects selector to the "ST 5" or "ST 10" position depending on the desired shooting time.

2. Set the function switch to the "18", "24", or "36" position depending on the desired shooting speed.

3. Close the viewfinder cover.
4. Press the electromagnetic shutter release.

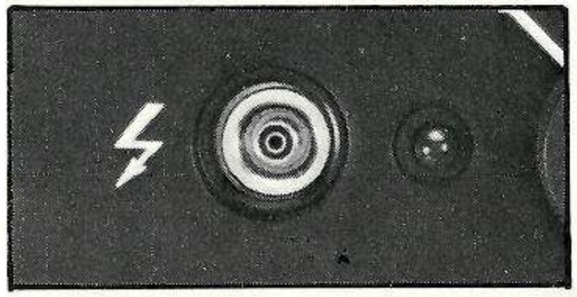


With the self-timer function, you can film yourself and increase your filmmaking enjoyment.

Using an electronic flash

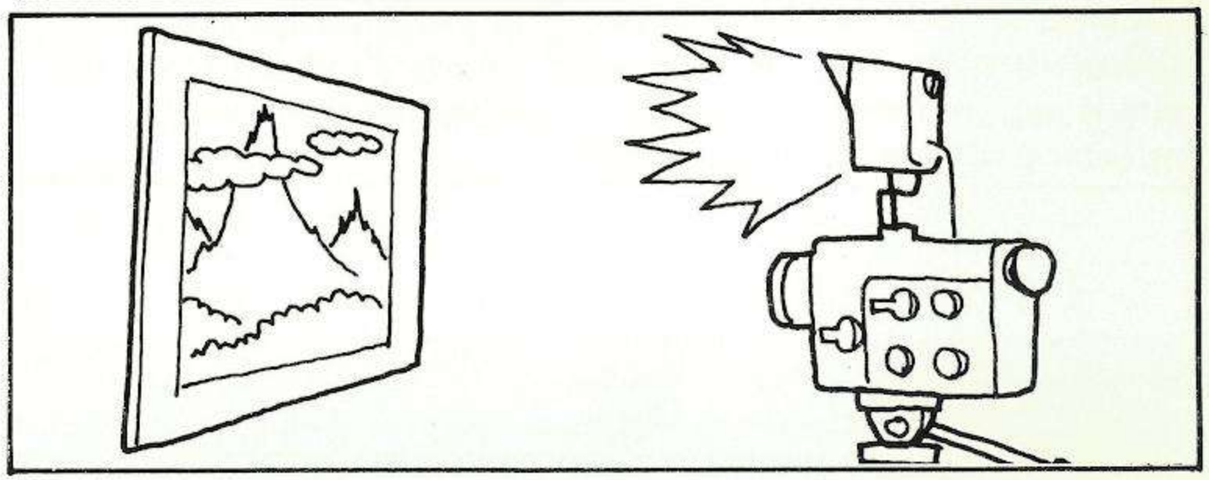
When shooting frame by frame, an electronic flash can be used, synchronized with the camera's flash. Frame by frame shooting is performed when using the camera in frame-by-frame mode, of course, and in interval timer mode; therefore, a flash can only be used in these two cases.

- Connect the cable of an electronic flash to the camera's flash sync socket.
- Calculate the aperture setting by dividing the flash's guide number (indicated in the accompanying instruction manual) by the distance between the subject and the camera.
- Adjust the aperture manually using the aperture control knob.

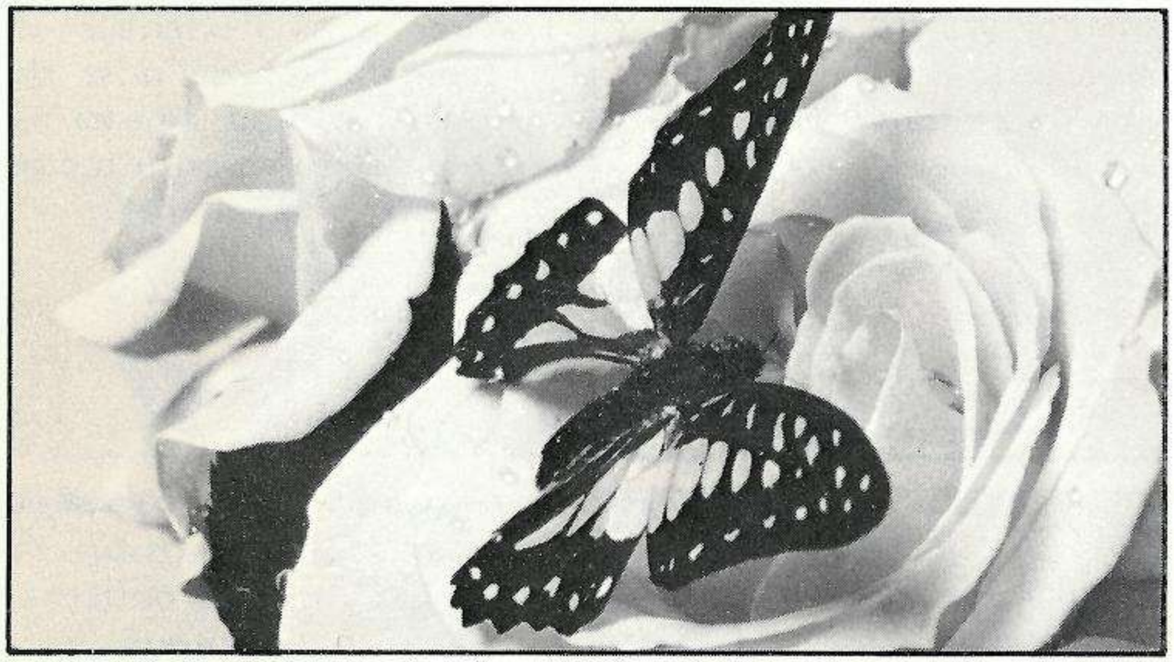


- Press the electromagnetic shutter release.

The lifespan of an electronic flash is approximately 5,000 flashes. Keep this in mind when performing a large number of frame-by-frame shots

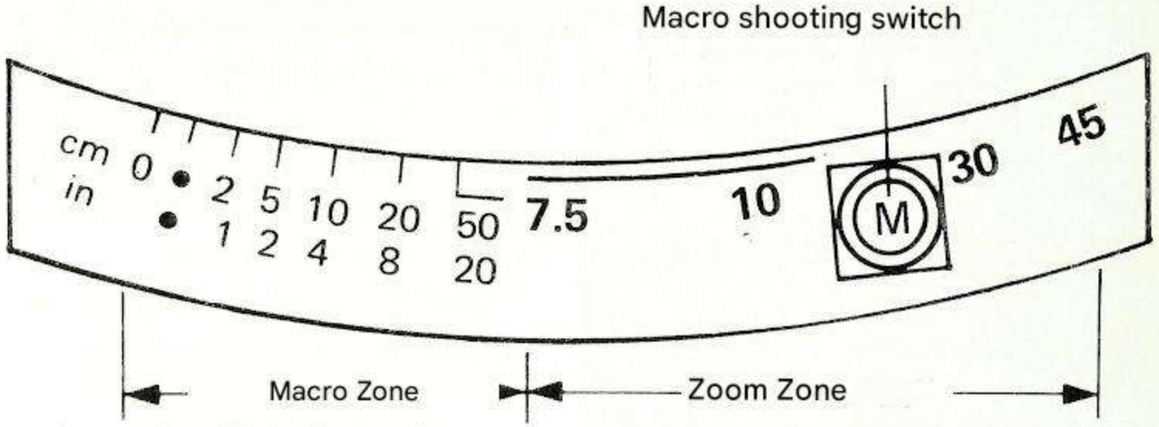


12 CINE-MACROPHOTOGRAPHY



Macrophotography is the shooting of small subjects at very close range. Thanks to its zoom lens with built-in macro, the camera allows, in addition to shooting with varying focal lengths, filming subjects at close ranges of 0 cm to 1.50 m for the EM-60XL, and 5 cm to 1.50 m for the EM-40XL. It is also possible to film continuously from the "zoom" position to the "macro" position and vice versa, simply by manipulating the zoom ring. Cine-macrophotography offers interesting possibilities for your films. Additional applications of macrophotography, such as titling, superimposition, etc., are described on pages 26 to 30.

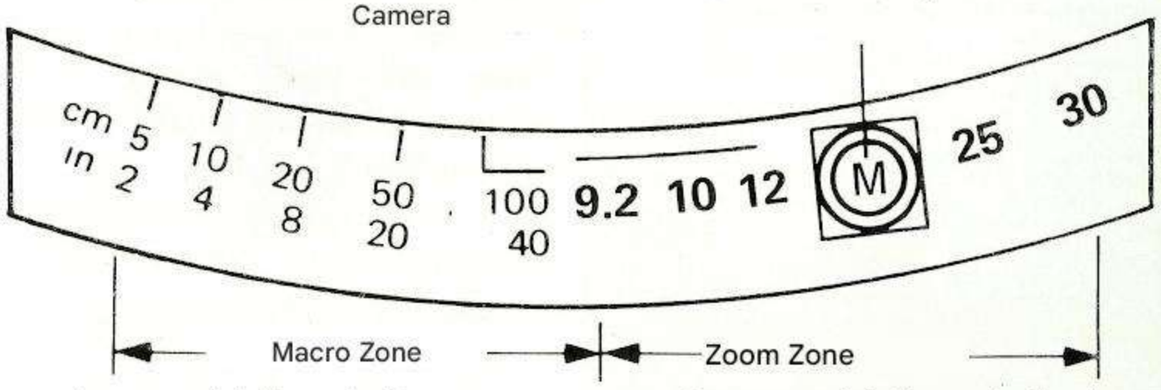
Zoom and macro on the EM-60XL camera



The macro scale indicates the distance between the subject and the front lens.

The zoom scale indicates the focal length used by the zoom lens.

Focal Length and Macro on the EM-40XL Camera



The macro scale indicates the distance between the subject and the front lens.

The zoom scale indicates the focal length used by the zoom lens

Macro Shooting Switch

The switch has two positions: locked and unlocked.

Shooting with the switch in the locked position

- Pull the switch out and rotate it to lock it.

The zoom ring can then be moved from the "macro" zone to the "zoom" zone and vice versa, allowing continuous shooting across the entire distance scale.

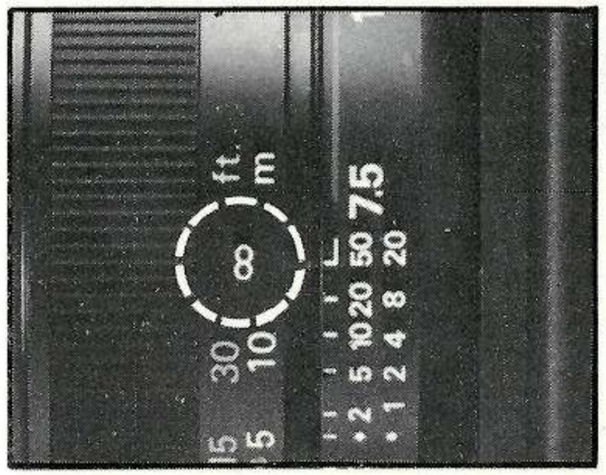
To unlock the switch, pull it out and rotate it in the opposite direction to the locking rotation.

Macro Shooting with the Switch in the Unlocked Position

- Rotate the zoom ring in the "macro" zone while pulling the macro shooting switch slightly out. When the zoom ring is returned to the "zoom" zone, the switch unlocks automatically.

Use

1. Pull the macro shooting switch outward and move the focal length control ring into the "macro" zone.



2. Set the focus ring to infinity (∞).

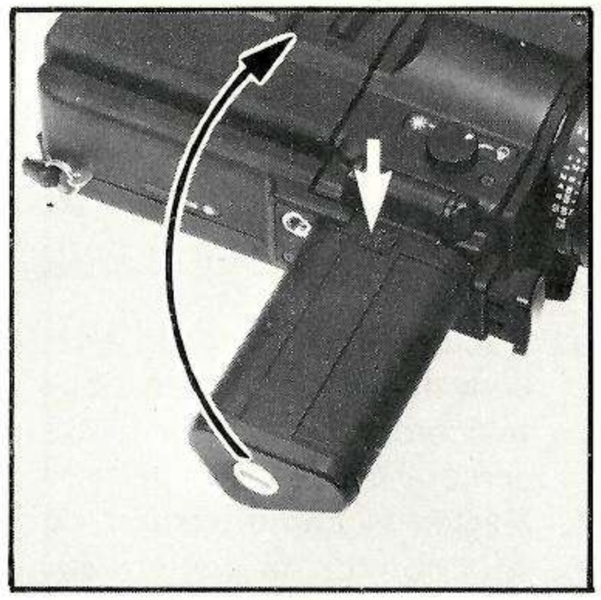
These settings are intended to give the best possible results in cine-macro photography. However, to film continuously from the "macro" position to the "zoom" position, set the focus ring to the distance between the camera and the subject to be filmed in normal shooting

13 TRIPOD MOUNTING

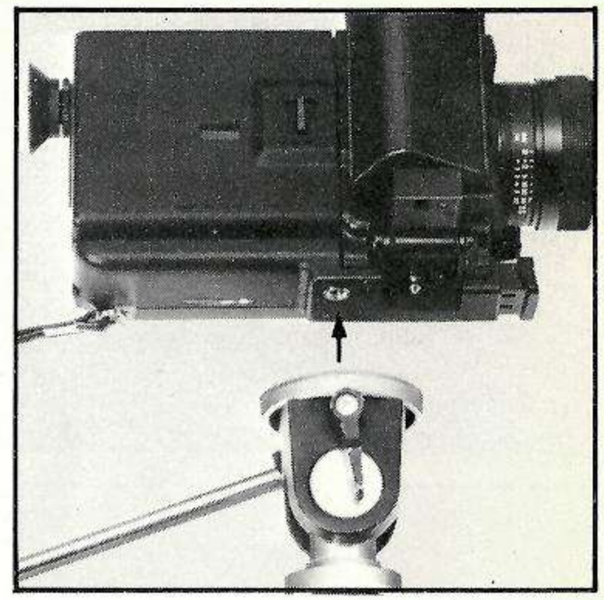
3. Focus using the zoom ring. The split-image rangefinder works even during macro photography.

For focusing by estimation, measure the distance between the subject and the orange dot on the zoom ring, which indicates the position of the front lens. Then, simply transfer this distance to the "macro" scale on the zoom ring.

The distances marked on the "macro" scale are valid for focusing at infinity.



- Fold the grip until it locks into the closed position.

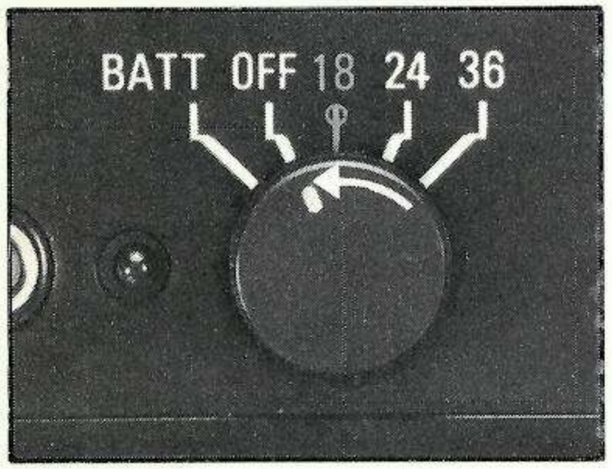


- Screw the tripod into the opening on the bottom of the camera body.

Use a tripod for telephoto shots, close-ups, stop-motion shooting, when using the wired or wireless remote control, or when using the Universal Timer

- Remember to unlock the macro switch at the end of shooting with it in the locked position.
- The closer the camera is to the subject, the shallower the depth of field. (See page 33.) Therefore, precise focusing is essential for macro photography
- The subject must always be sufficiently illuminated to allow the use of an aperture smaller than f/4 in all circumstances.
- The electric focus adjustment does not work in macro mode.

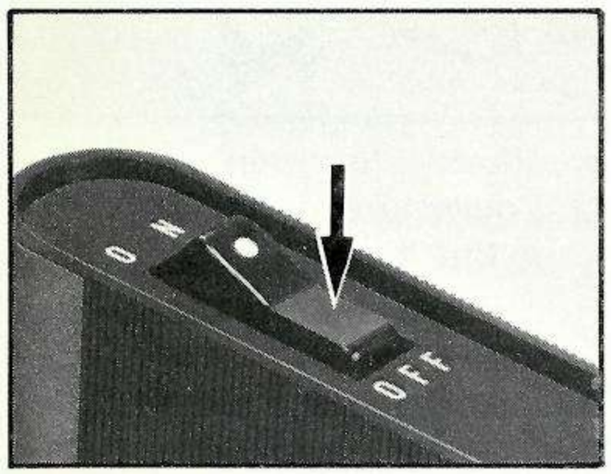
14 REMOTE CONTROL SHOOTING



1. Set the camera's function switch to the OFF position.

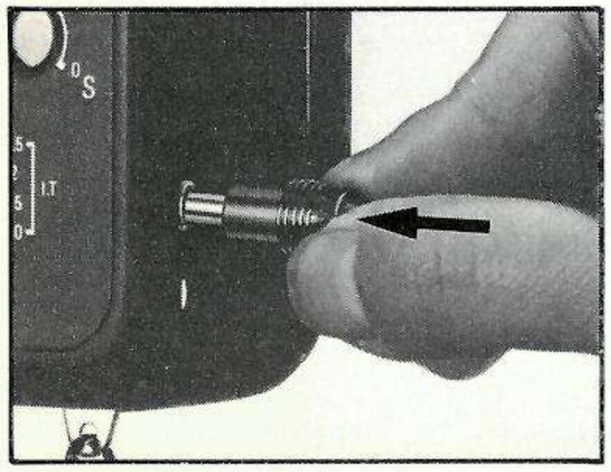
2. Set the remote control unit's on/off switch to the OFF position.

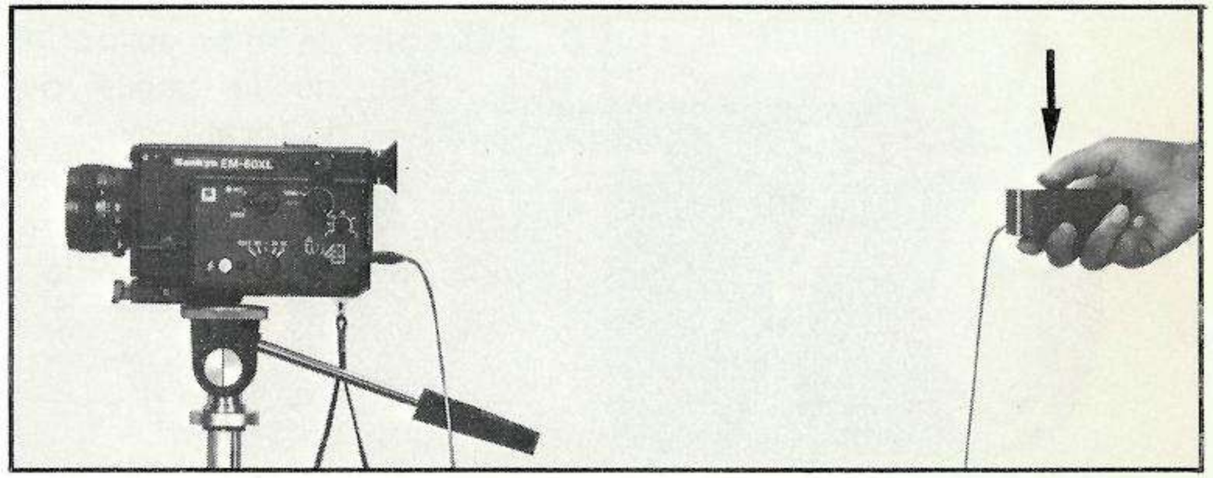
3. Connect the remote control unit to the camera's remote control jack (REM).



4. Set the camera's function switch to the "18", "24", or "36" position, depending on the desired shooting speed.

5. Set the remote control unit's on/off switch to the ON position: shooting will start automatically.





To stop remote control shooting

- Set the remote control unit's on/off switch to the OFF position.
- Set the camera's function switch to the OFF position.
- Disconnect the cable from the remote control unit

Remote control of frame-by-frame shooting and interval timer or self-timer shooting

- Set the special effects selector to the position corresponding to the desired operation.
- The self-timer and interval timer can be activated using the on/off switch on the remote control unit. To stop interval timer shooting or to interrupt self-timer shooting, set the special effects selector to the "N" position or set the function switch to the "OFF" position.

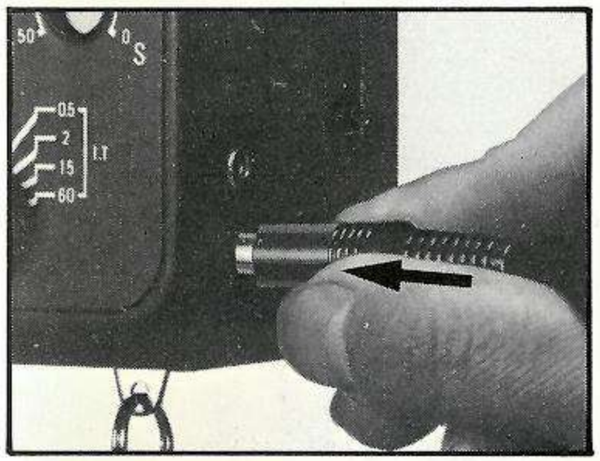
Take care not to connect or disconnect the remote control unit while the function switch is set to the "18", "24", or "36" position; otherwise, the electromagnetic trigger will activate momentarily.

15 EXTERNAL POWER SUPPLY

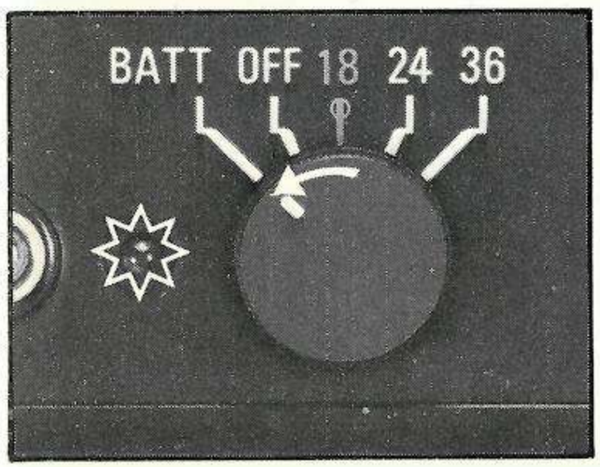
DC

The camera is equipped with an external 6-volt ("6V DC") power input for connecting an external power source: Sankyo's exclusive DC power supply, which will prove very convenient for extended camera use. The power supply provides either 9 volts or 6 volts with a simple switch. Set it to 6 volts before connecting it to the camera.

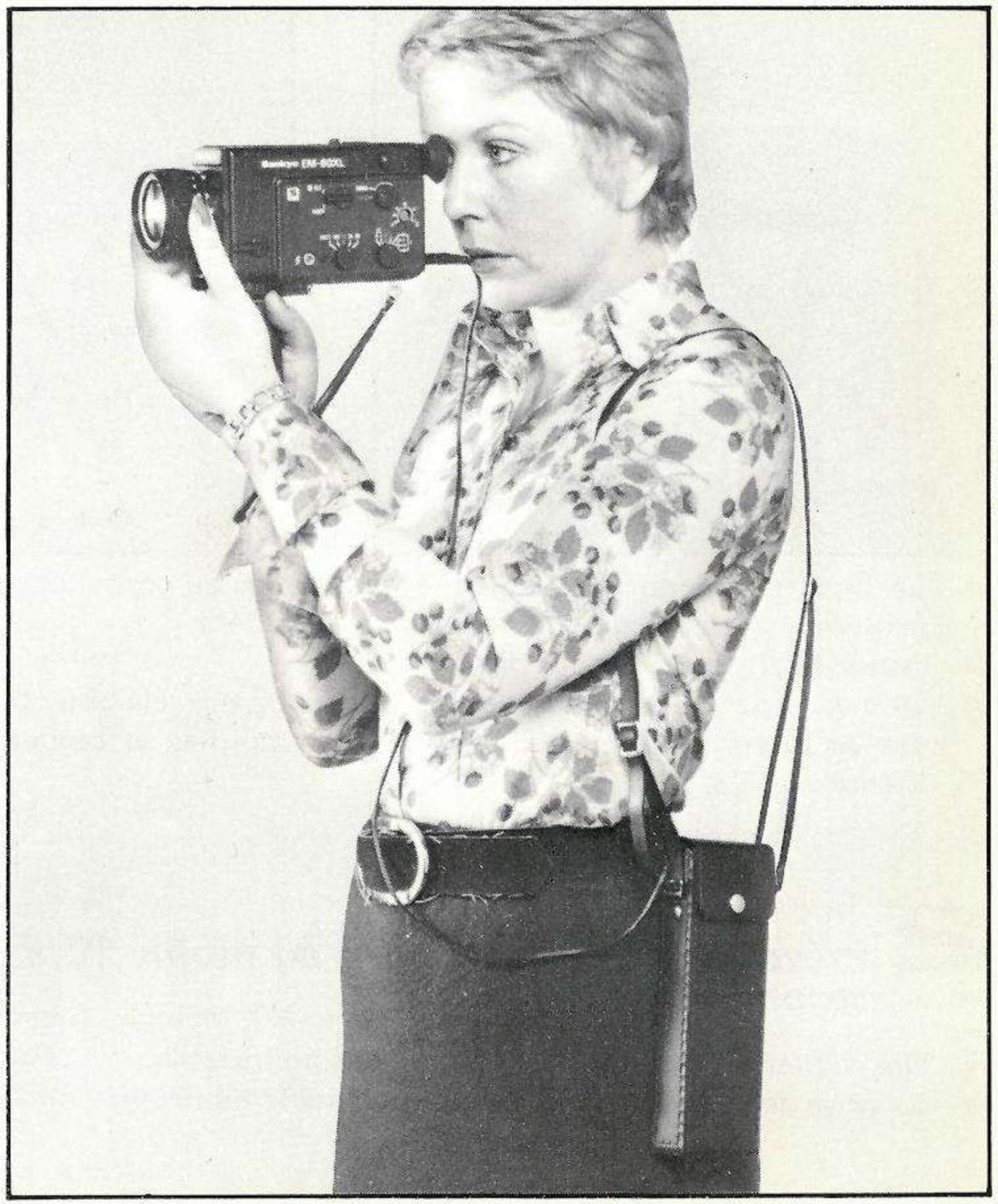
Use only the recommended external power source.



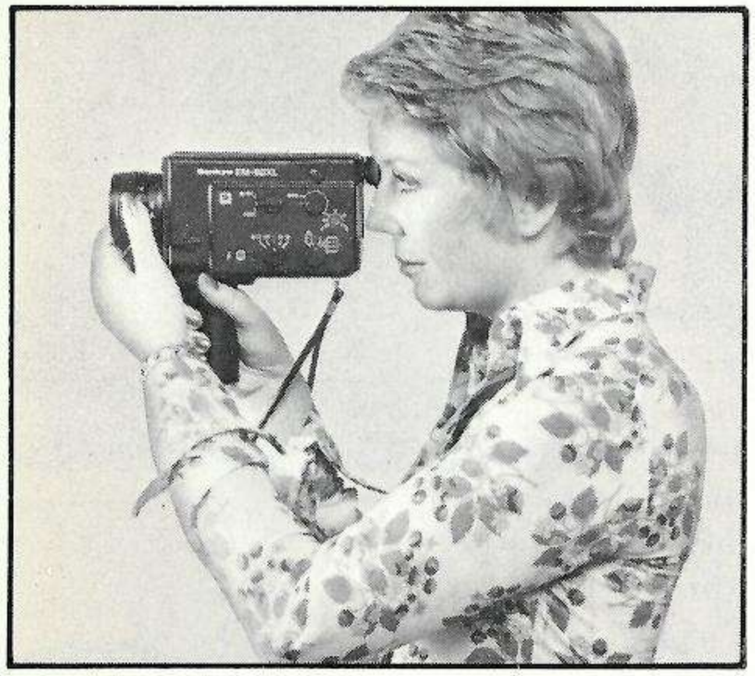
1. Connect the power supply cord to the camera's "6V DC" input.



2. Set the function switch to the "BATT" position and check the battery status indicator light



1 Hold the camera with a steady hand



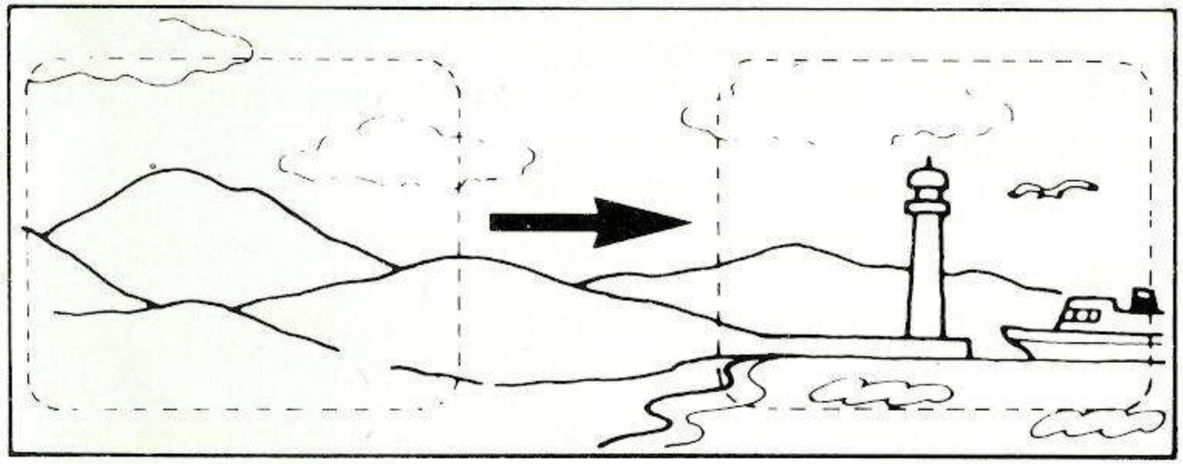
- Arm bent against the chest, elbows close to the body: this position ensures great camera stability.
- Loop the wrist strap around your wrist.
- Use a tripod for telephoto shooting, as hand shake is amplified and makes the film jump during projection.

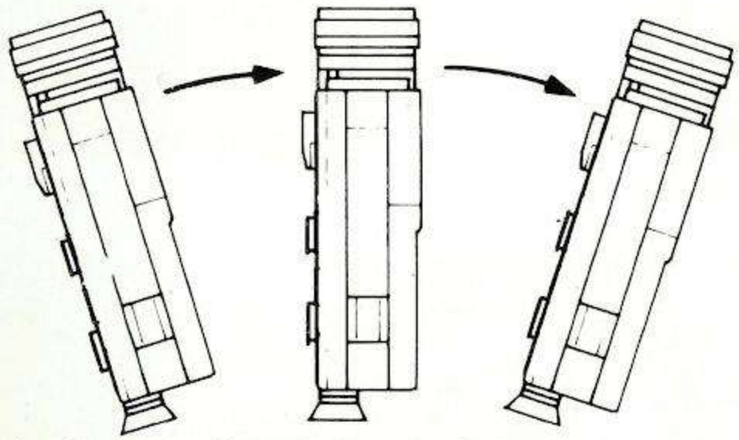
2 Plan sequences of at least 10 to 15 seconds

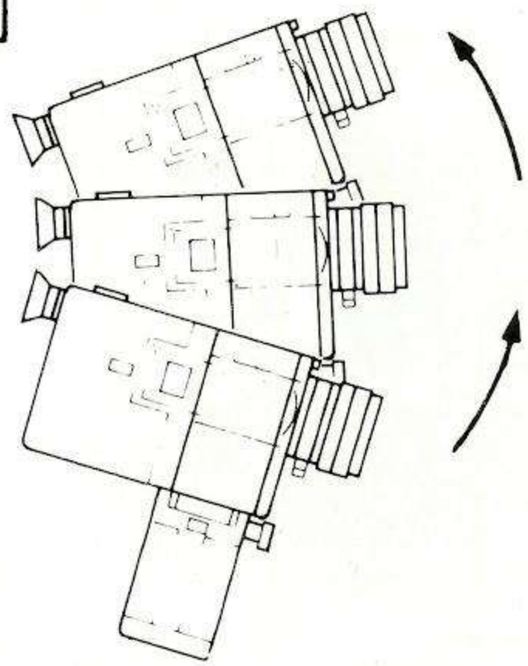
- Sequences that are too short make the film unstable.
- Shooting longer scenes makes editing easier.

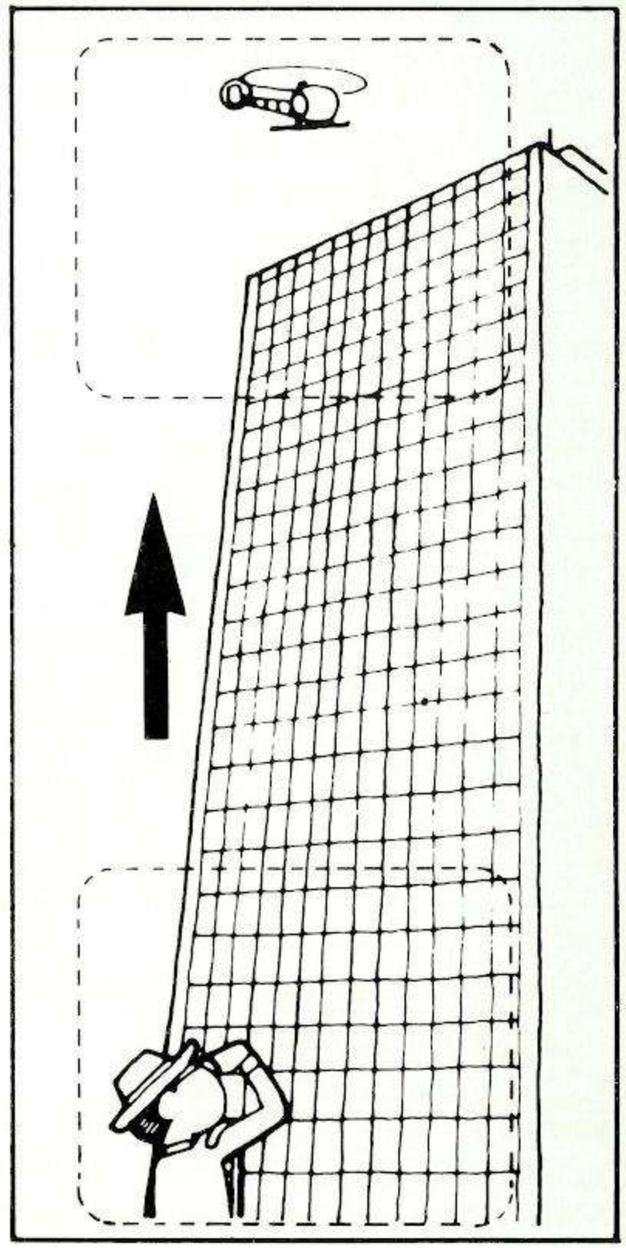
3 Horizontal and Vertical Pans

Horizontal Pans





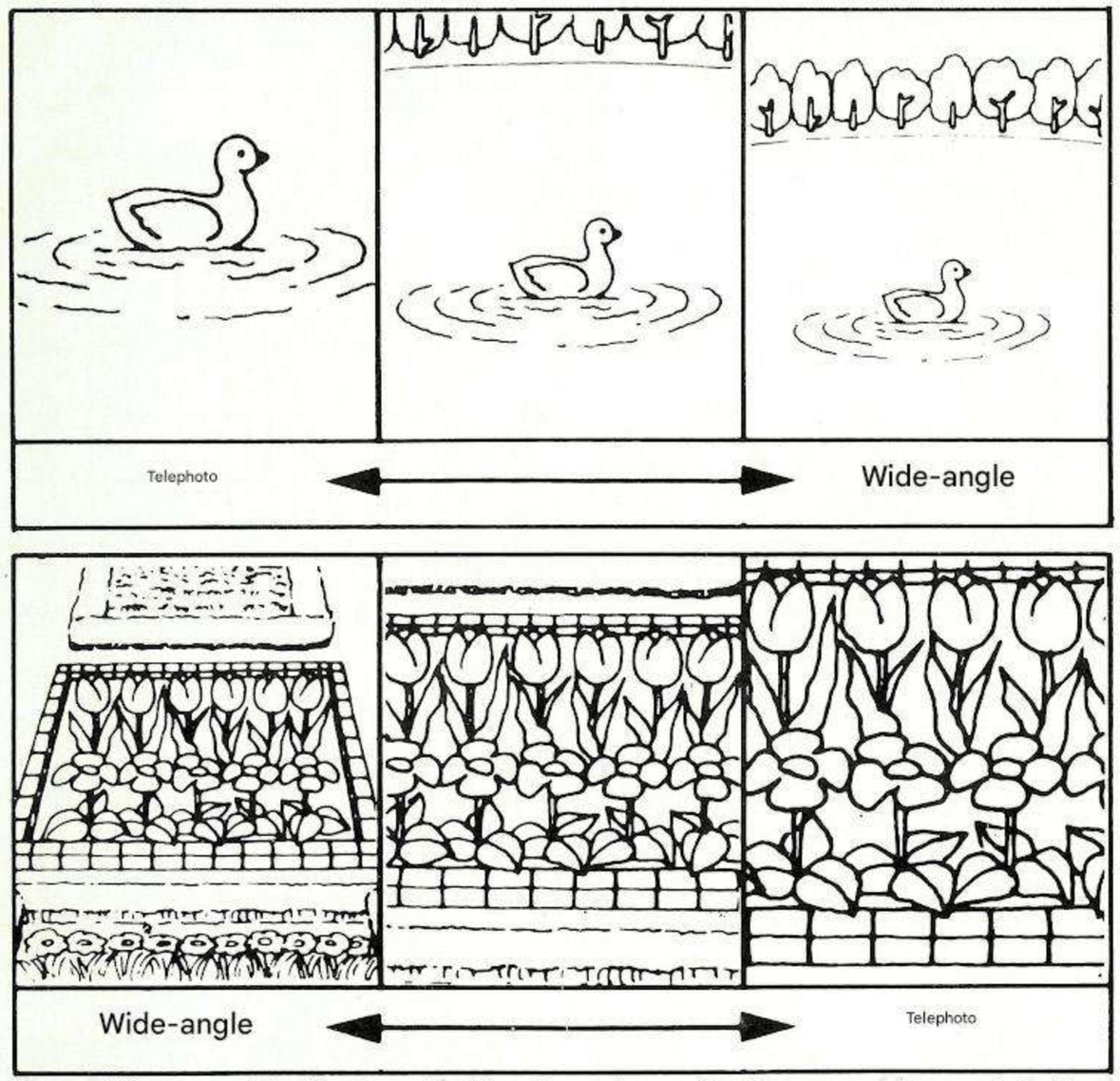




1. Start: Fixed shot for approximately 3 seconds.
2. The camera slowly pans horizontally or vertically.
3. End: Fixed shot for approximately 3 seconds.

- Decide in advance on the starting and ending positions of the pan.
- Pan the camera in a smooth motion. Do not return the camera to its starting position.
- Execute a fixed shot of approximately 3 seconds to emphasize a particular scene.
- Panning too quickly makes the film shaky

4 Electric control for smooth focal length variation

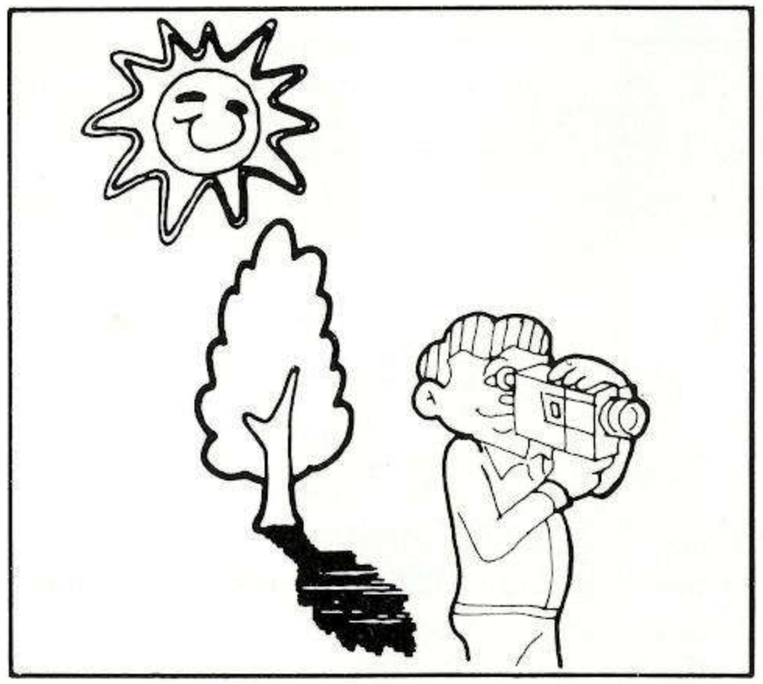


Except for special effects, start by focusing with the zoom ring set to the maximum telephoto position before changing the focal length. Manual control should be used to prepare the image composition before using the electric control, or for special effects achieved by quickly changing from the telephoto to the wide-angle position or vice versa

5 Don't change the shooting angle too often

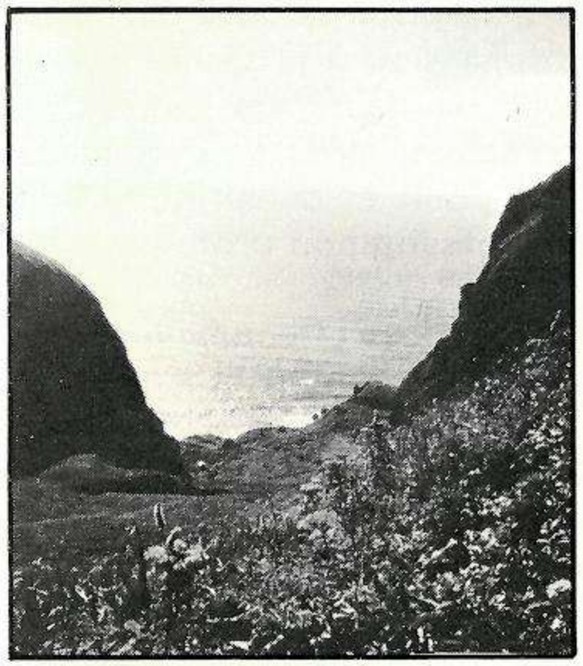
Don't overuse vertical panning, horizontal panning, forward focus shifting, backward focus shifting, etc. Overuse makes the film messy.

6 Film with the sun behind you



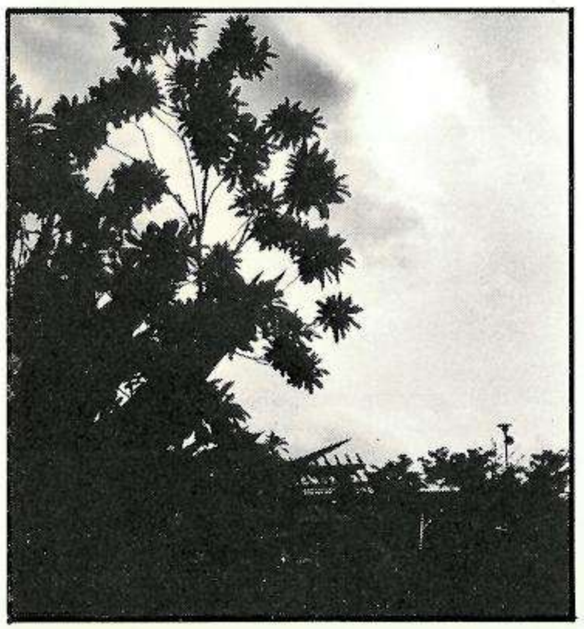
Film with your back to the sun as much as possible.

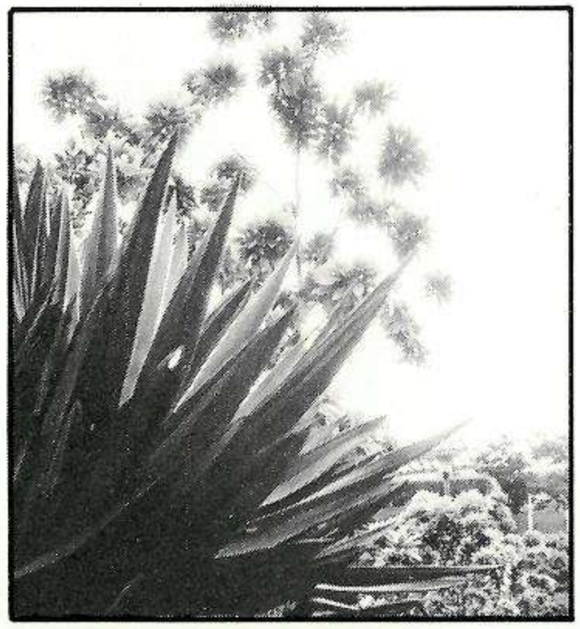
7 Backlighting



This technique can be used sparingly to achieve social lighting effects: shots by the sea, behind a group of trees, silhouettes, etc.

If necessary, use the backlight compensation lever.





8 Indoor Shooting

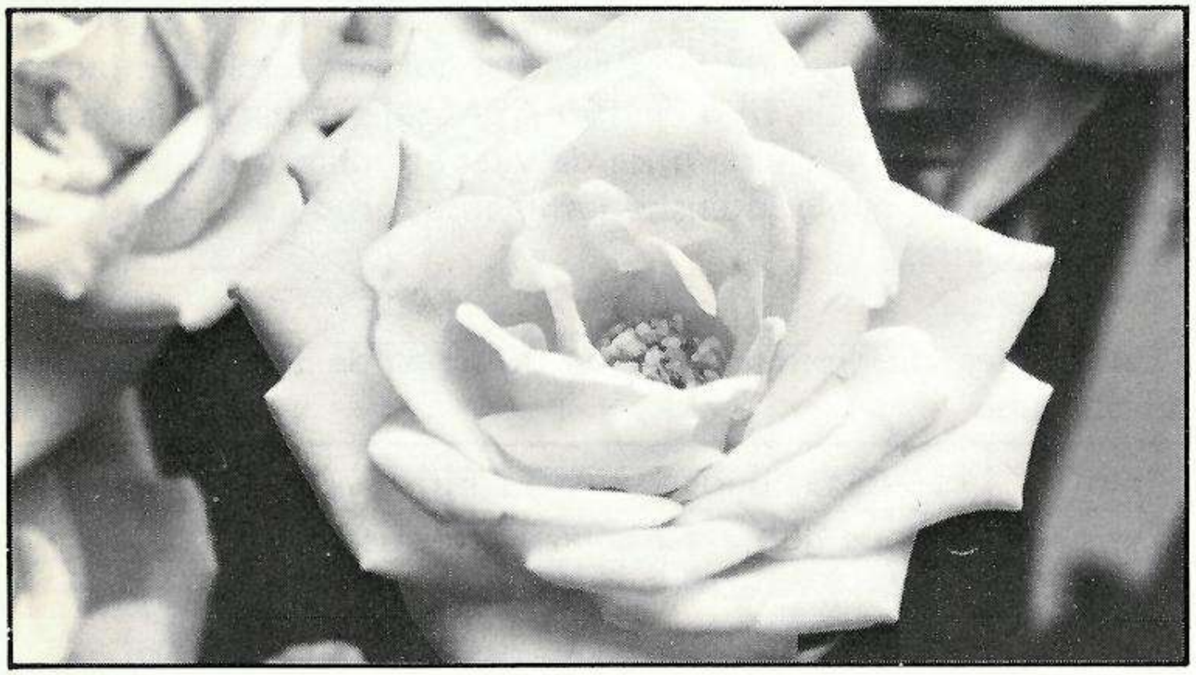
One of the advantages of your new camera is its ability to shoot indoors in low ambient light. Use 160 ASA film, which is particularly well-suited to this type of shooting and ensures correct exposure in low light, producing sharp, clear images.

Table of Different Film Types and Their Conditions of Use

Film	Room Lighting		Filter
Type A 160 ASA	Fluorescent or Mercury Vapor Lamp		Required
	Incandescent Lamp		Not Required (Set the filter position control knob to Required)
Type A 40 ASA	Additional lighting is sometimes required	Blue Light	
		Cinema Light	Not required (Automatic control when the light is attached to the camera) Not required
Type G 160 ASA			(Automatic control when a charger is attached)

- As the light decreases, the depth of field also decreases. Focus very precisely

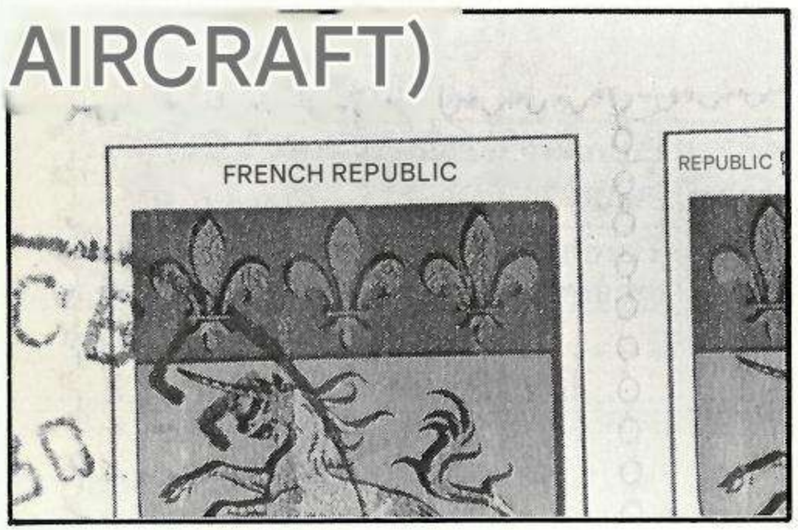
9 Macro Photography: A Personal Style



Macro photography applied to cinematography brings a new dimension to your filmmaking. Close-ups of insects, flowers, stamps, details of paintings or photographs, combined with titling, focus variation, and superimposition techniques, give a personal style and a professional presentation to the films you want to make.

Since the EM-60XL camera can focus on a subject placed directly in front of the lens, the use of the macro titling unit, a Sankyo exclusive included with the camera, allows for several interesting shooting techniques

AIRCRAFT)



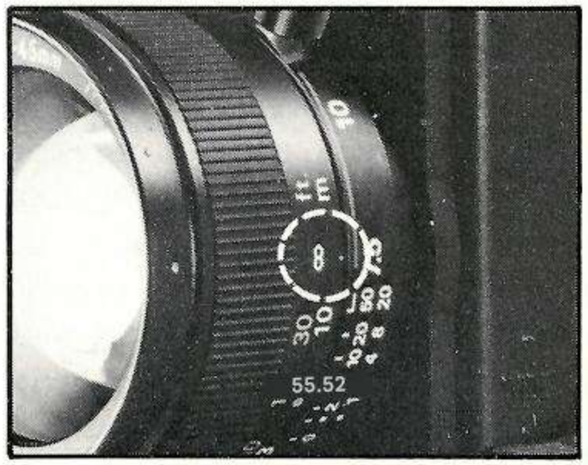
Macro Titler (EM-60XL only)

The macro titler is placed in front of the camera lens and holds the subject to be filmed in macro position. It accepts a 35mm slide or any other transparent surface of the same size. When the subject to be filmed in macro is placed on the titler, the focus is correct when the focal length adjustment ring is set to the reference point on the "macro" scale (between 0 and 2 cm). You can make your own special effects masks (35mm slides with specially shaped apertures: see Example 1), or title masks (35mm slides with a special space for titles and credits: see Example 2), and invent your own techniques for using the titler.

Example 1

Example 2

The basic steps for creating titles, special effects, and double exposures are shown below



1. Rotate the zoom ring to the "macro" zone and align the "" mark on the "macro" scale of the ring with the mark on the lens.

2. Set the focus knob to infinity (∞).

3. Mount the macro titler in front of the lens.

4. Place a lens cap in the titler.

5. Check in the viewfinder that the lens cap is correctly positioned.

6. Record for 5 to 7 seconds in "AUTO" mode

Macro Overlay (EM-60XL)

Another fascinating technique that uses special effects and titling masks: macro overlay. The procedure is the same as using the macro titling machine. However, a few modifications to the steps can provide a whole range of amazing special effects.

a. Instead of focusing at infinity (∞), pre-focus the lens on the subject you want to film.

b. Shoot with the zoom ring in the wide-angle position. The subject will be very sharp, surrounded by the mask with blurred edges. Alternatively, you can film the first 5 seconds with the zoom ring set to the "" mark, then smoothly rotate the ring to the wide-angle position. Both of these techniques can add a mysterious atmosphere to your films

c. Rotate the zoom ring from the "wide-angle" position to the "telephoto" position and film the subject on which the focus has been set. The mask will then gradually blur and surround the subject with beautiful, delicate colors.

Macro superimposition (EM-40XL)

- Another fascinating technique: superimposing opening credits displayed on a transparent surface onto a background scene. The procedure is as follows: a

. Pre-focus on the subject to be filmed in "zoom" position.

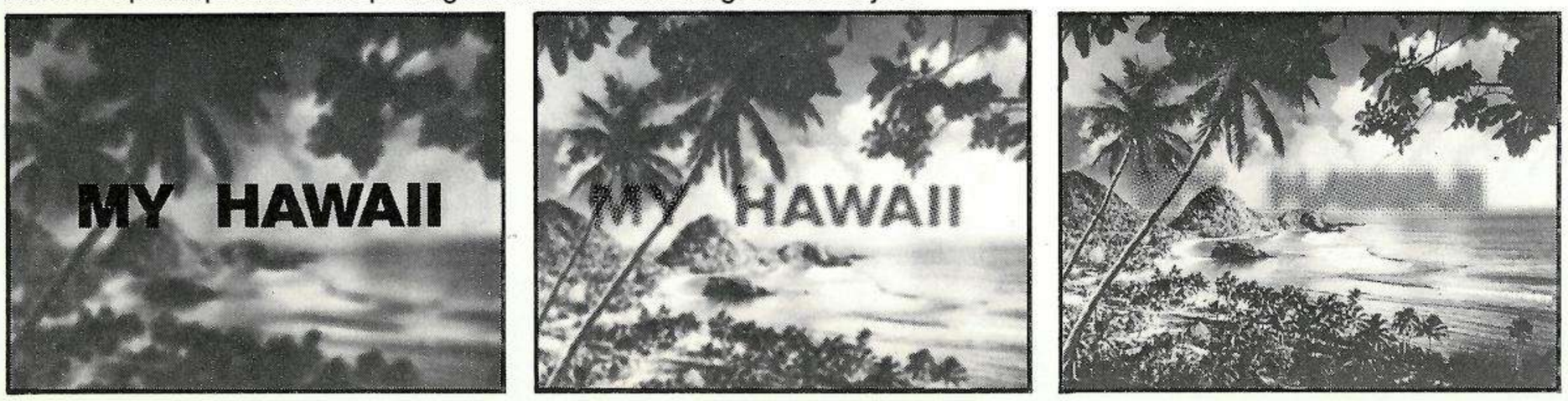
b. Position the transparent surface with the title or credits at a distance of approximately 5 centimeters

c. Film for about 5 seconds with the zoom ring set to the 5cm "macro" position. The title appears very sharp while the background scene is blurred. Then, rotate the ring smoothly towards the wide-angle position.

c. Rotate the zoom ring from the wide-angle position to the telephoto position and film the subject that was in focus.

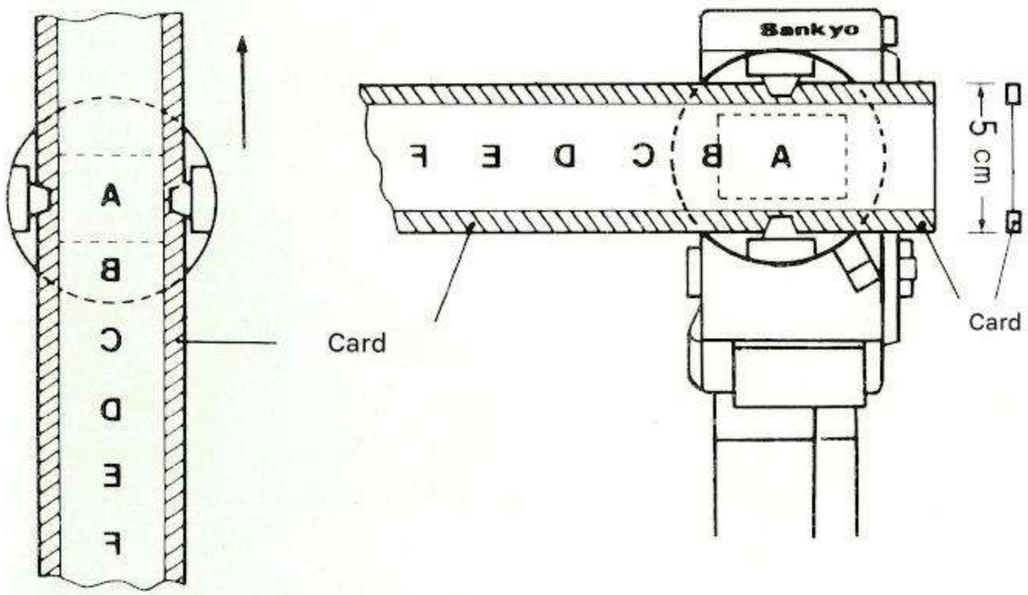
e. The same maneuver can be performed in reverse, from the "telephoto" position to the "macro" position, and produces another interesting effect

Macro superimposition of opening credits onto a background subject



Moving Titles (EM-60XL)

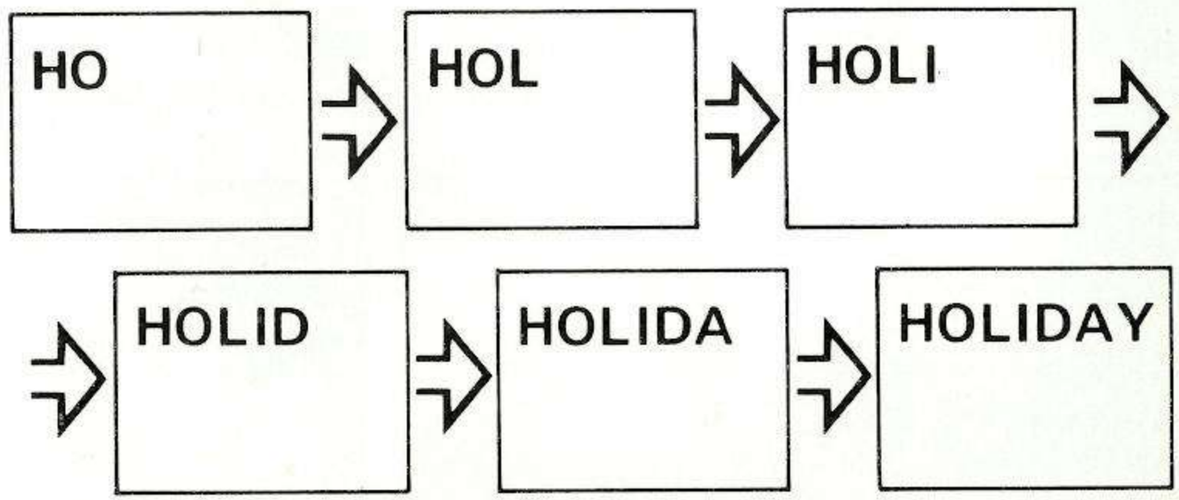
If you're an active person, inject some action into your film titles. You can draw them on a strip of tracing paper about 5 cm wide, or on a roll of unexposed 35 mm film. With strips of cardboard folded in half lengthwise and taped to the paper as a guide, you can scroll the credits slowly vertically or horizontally, as shown in the diagram below.



Titling

- Let your imagination run wild! Create your own film titles on postcards, photographs, atlas maps, hand-drawn images, etc., and film them in macro from a distance of 5 centimeters to 1.5 meters. Make sure the subject is properly lit

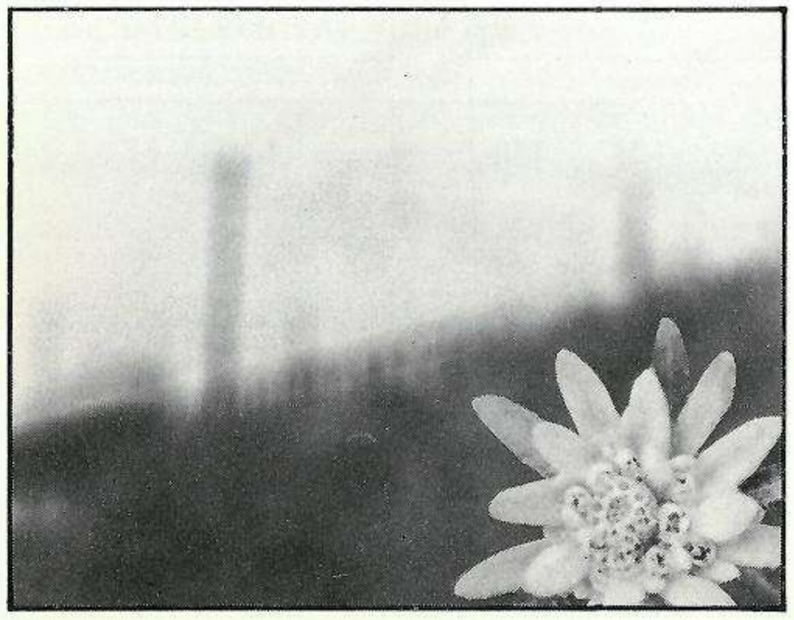
- Titles can be drawn on a transparent surface: glass or tracing paper. To film outdoors, point the camera towards a clear sky; indoors, point the camera towards a white wall or a well-lit sheet of paper. An original technique is to introduce the letters of the title one by one, filming each letter for about 4 seconds and the entire title for about 7 seconds.

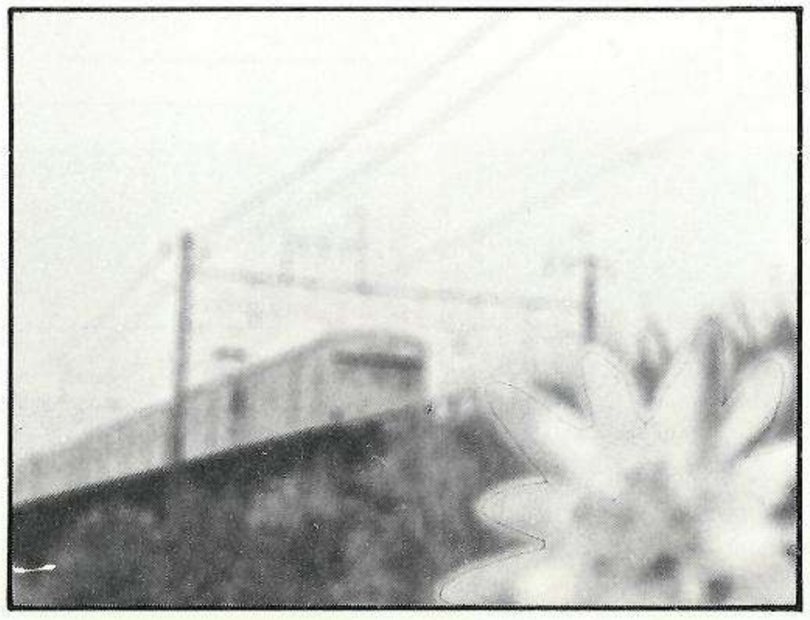


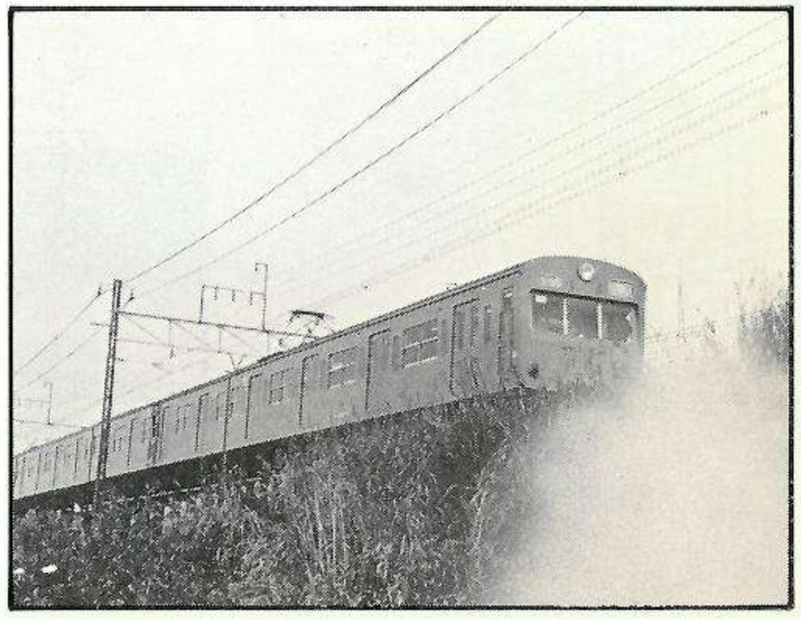
* The image seen in the viewfinder does not exactly represent the entire projected image. Make sure to frame the image so that the entire subject is filmed

Focus Variation

- With the macro shooting switch in the locked position, continuously rotate the manual focus control from the "tele" position to the "macro" position or vice versa: the resulting focus variation produces a series of shots characterized by a striking contrast between the delicate blur of subjects not in focus and the sharpness of subjects located exactly in the focus area







10 SPECIAL ACCESSORIES

Universal Timer

The Universal Timer, a Sankyo exclusive sold separately, is designed to work in conjunction with the camera. It is equipped with integrated circuits and has four different functions:

Self-Timer

- Standby Time: 10 seconds
- Recording Time: 5 seconds or 10 seconds (switchable)

Intermittent Timer

- Automatic frame-by-frame shooting at preset intervals
- Interval selection: half a second, 2 seconds, 15 seconds, and 1 minute

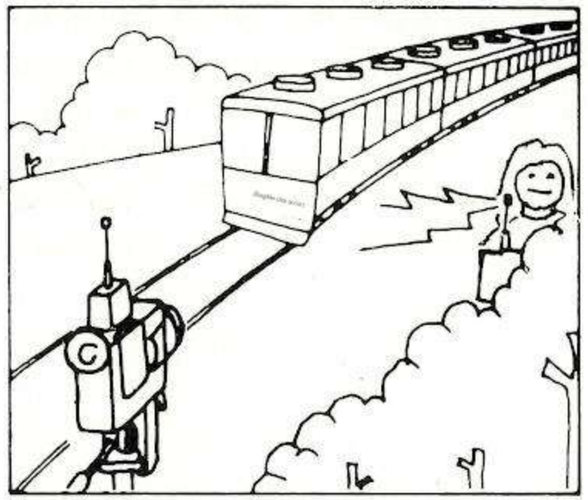
Preset Stop Timer

- Shooting stops automatically after a preset interval
- Interval time selection: 4 seconds or 15 seconds (switchable)

Animation timer

- Frame-by-frame exposure repeats automatically for easy animation
- Number of successive exposures selection: 1 frame or 4 frames

Radio Remote Control*



- The radio remote control is very convenient for wildlife filmmaking, for example, because the absence of wires for controlling camera functions significantly increases the camera's flexibility.

* Not available in some countries due to local regulations.

For details on special accessories, refer to the accompanying instruction manual

DEPTH OF FIELD TABLES

When focus has been achieved on a subject to be filmed, some objects in front of or behind the subject also appear in the image with great sharpness, and the focus is correct for these objects as well. The distance between the nearest object to the camera and the farthest object from the camera that appears in the image with great sharpness is called the depth of field. The distances shown below are measured from the camera's film plane mark (Φ).

EM-40XL/60XL NORMAL f=20

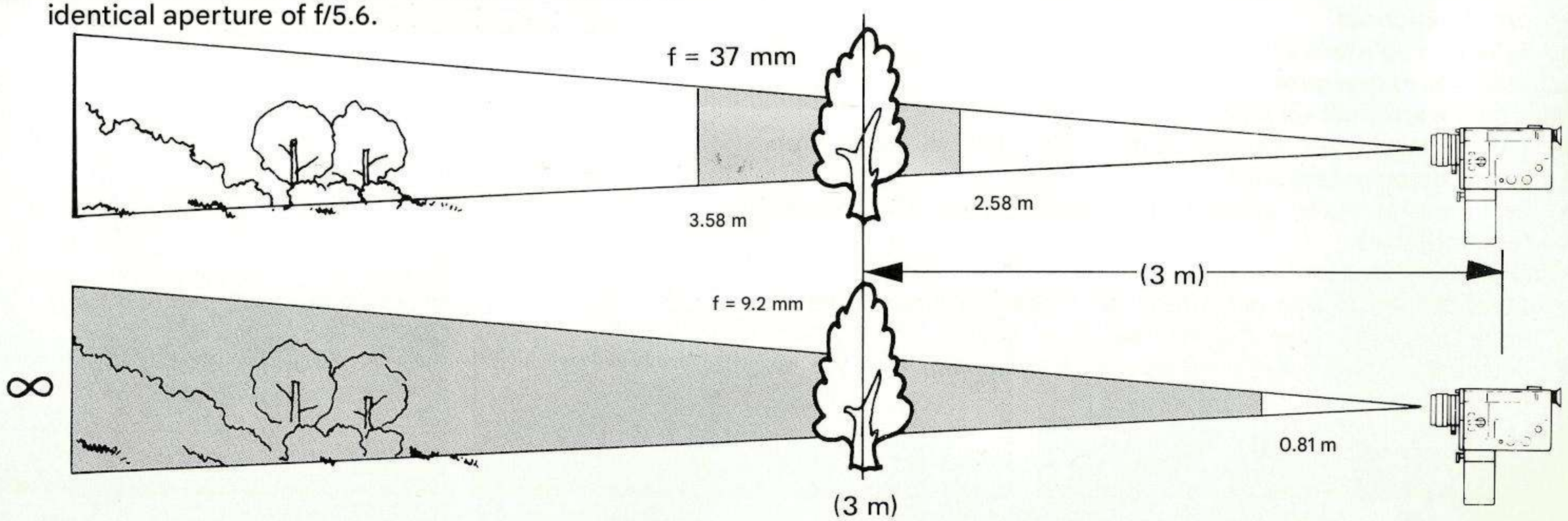
Distance / distance / Aperture		∞	10	5	3	2	1.5
	Meter	∞	10	5	3	2	1.5
	Feet	∞	30	15	8	6	4.5
1.2	Meter	25.64~∞	7.19~ 16.39	4.18~6.21	2.69~3.40	1.86~2.17	1.42-1.59
	Feet	84.12~∞	22.11~ 46.63	12.73~18.26	7.31-8.84	5.60~ 6.46	4.27-4.75
2.8	Meter	10.88~∞	5.21-123.82	3.43~ 9.25	2.35~ 4.14	1.69-2.45	1.32~ 1.74
	Feet	35.69~∞	16.30-188.15	10.56-25.87	6.54-10.31	5.14-7.21	4.00-5.15
5.6	Meter	5.44~∞	3.52~∞	2.61~61.91	1.93~ 6.69	1.46~ 3.16	1.18~ 2.07
	Feet	17.85~∞	11.19~∞	8.15~94.07	5.52-14.50	4.49~ 9.04	3.59~ 6.02
16	Meter	1.92~∞	1.61~∞	1.39~∞	1.17-00	0.98~∞	0.84-6.82
	Feet	6.31~∞	5.21~∞	4.44~∞	3.53~∞	3.08-122.39	2.63-15.69

Two simple rules can serve as a general guide for focusing:

— Depth of field increases as the focal length decreases;

— Depth of field increases as the aperture decreases (i.e., as the number indicating the aperture increases).

Example: Comparison between focal lengths of 9.2 mm and 37 mm for an identical aperture of f/5.6.



EM-40XL WIDE f=9.0 (9.2 mm)

Say-tance / Opening	Meter	∞	10	5	3	2	1.5
	Feet	∞	30	15	8	6	4.5
1.2	Meter	5.19~∞	3.42~∞	2.55~135.00	1.90~ 7.11	1.44~ 3.25	1.16~2 .11
	Feet	17.04~∞	10.87~∞	7.98~125.56	5.44~15.08	4.44~ 9.26	3.56~6 .12
2.8	Meter	2.20~∞	1.81~∞	1.53~∞	1.27~∞	1.05~21.71	0.89~ 4.70
	Feet	7.23~∞	5.82~∞	4.88~∞	3.80~∞	3.28~35.33	2.77~11.92
5.6	Meter	1.10~∞	0.99~∞	0.90~∞	0.81~∞	0.71~∞	0.64~∞
	Feet	3.61~∞	3.23~∞	2.91~∞	2.49~∞	2.26~∞	2.00~∞
16	Meter	0.39~∞	0.37~∞	0.36~∞	0.34~∞	0.33~∞	0.31~∞
	Feet	1.28~∞	1.23~∞	1.18~∞	1.10~∞	1.05~∞	1.00~∞

EM-60XL WIDE f=7.5

Say-tance / Opening	Meter	∞	10	5	3	2	1.5
	Feet	∞	30	15	10	6	5
1.2	Meter	3.61~∞	2.65~∞	2.09~∞	1.64~17.86	1.29~ 4.49	1.06~ 2.57
	Feet	11.83~∞	8.48~∞	6.61~∞	5.42~64.65	3.98~12.18	3.51~ 8.66
2.8	Meter	1.53~∞	1.33~∞	1.17~∞	1.01~∞	0.87~∞	0.76~77.01
	Feet	5.02~∞	4.30~∞	3.76~∞	3.34~∞	2.73~∞	2.50~∞
5.6	Meter	0.76~∞	0.71~∞	0.66~∞	0.61~∞	0.55~∞	0.51~∞
	Feet	2.51~∞	2.32~∞	2.15~∞	2.01~∞	1.77~∞	1.67~∞
16	Meter	0.27~∞	0.26~∞	0.26~∞	0.25~∞	0.24~∞	0.23~∞
	Feet	0.89~∞	0.86~∞	0.84~∞	0.81~∞	0.77~∞	0.75~∞

EM-40XL TELE f=37

Distance / Opening	Meter	∞	10	5	3	2	1.5
	Feet	∞	30	15	8	6	4.5
1.2	Meter	87.76~∞	8.98~11.29	4.73~ 5.30	2.90~ 3.11	1.96~2.05	1.47~1.53
	Feet	287.91~∞	27.17~33.49	14.26~15.82	7.78~ 8.23	5.88~6.13	4.43~4.57
2.8	Meter	37.23~∞	7.88~13.67	4.41~ 5.78	2.78~ 3.26	1.90~2.11	1.44~1.56
	Feet	122.15~∞	24.08~39.77	13.36~17.10	7.51~ 8.56	5.72~6.31	4.34~4.67
5.6	Meter	18.62~∞	6.51~21.61	3.94~ 6.84	2.58~ 3.58	1.81~2.24	1.39~1.63
	Feet	61.08~∞	20.12~58.96	12.04~19.88	7.07~ 9.21	5.46~6.65	4.19~4.86
16	Meter	6.58~∞	3.97~∞	2.84~20.81	2.06~ 5.51	1.53~2.87	1.22~1.94
	Feet	21.59~∞	12.56~∞	8.85~49.12	5.84~12.71	4.70~8.31	3.72~5.68

EM-60XL TELE f=45

Distance / Opening	Meter	∞	10	5	3	2	1.5
	Feet	∞	30	15	10	6	5
1.2	Meter	129.81~∞	9.28~ 10.83	4.81~ 5.20	2.93~ 3.07	1.97~2.03	1.48~1.52
	Feet	425.88~∞	28.03~ 32.27	14.49~15.55	9.77~10.24	5.92~6.09	4.94~5.06
2.8	Meter	55.07~∞	8.46~ 12.22	4,585.50	2.85~ 3.17	1.93~2.08	1.46~1.54
	Feet	180.68~∞	25.73~ 35.97	13.85~16.36	9.48~10.59	5.81~6.21	4.87~5.14
5.6	Meter	27.54~∞	7.34~ 15.70	4.23~ 6.1[illegible]	2.71~ 3.37	1.86~2.16	1.42~1.59
	Feet	90.34~∞	22.52~ 44.91	12.86~17.99	9.00~11.24	5.63~6.43	4.74~5.29
16	Meter	9.74~∞	4.93~∞	3.30~10.28	2.29~ 4.34	1.66~2.52	1.30~1.77
	Feet	31.94~∞	15.47~493.71	10.21~28.28	7.62~14.56	5.05~7.39	4.32~5.93

The grey areas correspond to the example given on the previous page.

Depth of Field Charts for Macro Shooting. The distances shown are measured from the front lens surface mark ( ) located on the camera's focusing ring. The tables below give the results for a setting corresponding to the values indicated on the focal length ring; however, it is possible to focus at a setting between two values.

EM-40XL

Distance / Aperture						
	cm	5	10	20	50	100
inch		2	4	8	20	140
1.2	cm	4.82~5.17	9.62~10.39	18.98~21.10	45.40~55.52	84.50~121.98
	inch	1.93~2.07	3.84~ 4.15	7.59~ 8.44	18.16~22.21	33.80~ 48.79
2.8	cm	4.60~5.43	9.14-10.96	17.76-22.73	40.34-64.90	69.80-171.22
	inch	1.84-2.17	3.65-4.38	7.10-90.93	16.13-25.96	27.92~ 68.49
5.6	cm	4.24-5.90	8.38-12.06	15.89~26.14	33.58-90.92	53.11-544.45
	inch	1.69~2.36	3.35~ 4.82	6.35~10.45	13.43~36.37	21.24~217.78
16	cm	3.10~8.11	6.17~17.97	11.02~52.58	19.86~∞	26.82~∞
	inch	1.24~3.24	2.47~ 7.18	4.41~21.03	7.94~∞	10.72~∞

EM-60XL

Distance / Opening							
	cm	0	5	10	20	50	100
inch		0	2	4	8	20	40
1.2	cm	−0.03~0.03	4.81~5.19	9.54~10.49	18.65~21.51	43.56-58.44	78.41~136.91
	inch	−0.01~0.01	1.92-2.07	3.81-4.19	7.46~ 8.60	17.42~ 23.37	31.36~ 54.76
2.8	cm	−0.07~0.07	4.57~5.46	8.97~11.20	17.08~23.84	37.04~ 74.91	60.55~263.64
	inch	−0.03~0.03	1.83~2.18	3.59-4.48	6.83-9.53	14.81-29.96	24.22-105.45
5.6	cm	−0.14~0.16	4.19~5.98	8.09~12.62	14.80~29.17	29.11-142.62	42.81-00
	inch	-0.05-0.06	1.67-2.39	3.23-5.05	5.92-11.67	11.64-57.04	17.12 ∞
16	cm	−0.39~0.49	3.02-8.54	5.65~21.56	9.42~111.04	15.28~ ∞	19.18~ ∞
	inch	−0.15~0.19	1.21~3.41	2.26~ 8.62	3.76~44.41	6.11~ ∞	7.67~ ∞

TECHNICAL SPECIFICATIONS

EM-60XL

Film — 15m Super-8 Loader

Lens — Sankyo Zoom Lens with Macro f/1.2; f = 7.5 to 45mm (6X) 13 groups, 14 elements

Minimum focusing distance: 1.5m for zoom shooting; 0cm for macro shooting

Filter diameter: 52 mm

Lens cap diameter: 54 mm By split-image focusing

Focusing Viewfinder

Reflex viewfinder with split-image focusing

Acuity adjustment from -5 to +5 diopters (built-in locking mechanism) Built-in eyecup Built-in viewfinder cover

Focus variation Automatic electric focus variation

Manual focus adjustment possible with focus ring

Power — Four (4) AA type alkaline manganese batteries

Batteries are housed in the grip External

power supply: 6 volts DC Power plug polarities: negative (-) in the center, positive (+) around the edge.

Battery status check: On lever operation, LED indicator

Shooting speed: 18, 24, 36 frames/second and single frame Shutter opening:

220°

Film Speed ASA 40, 160 (Daylight Type) ASA 40, 160 (Type A) ASA 40, 160 (Type G)

Film speed is automatically set by the film advance unit when inserted

Light Meter — Fully automatic aperture control by CdS cell light meter with

Through-the-lens metering
Aperture range: f/1.2 to f/45 (full black fade capability)

Manual control: aperture scale and indicator in the viewfinder

Exposure warning: red areas in the viewfinder indicate overexposure and underexposure

Backlight compensation: activated by lever operation

Filter: built-in Type 85 filter. Position automatically controlled by the film advance unit or manually controlled by a control knob

Film advance counter: counter with automatic reset

Film advance indication: blinking indicator in the viewfinder

Grip: Also serves as a film end indicator. Folds down (contains battery compartment)

Flash sync: flash sync socket for single-frame shooting

Auto fade: lever control. Indicator and close-up mark in the viewfinder.

Intermittent timer: possible intervals: 0.5, 2, 15, and 60 seconds

Self-timer: Standby time: 10 seconds. Recording time: 5 or 10 seconds.

Remote control socket. For Universal Timer, wired remote control, and wireless remote control.

Other features: (1) Multi-function switch

(2) Tripod mounting nut, cinema light mounting socket (JIS B7103, 1/4-20UNC)

(3) Built-in filter position control knob

(4) Detachable wrist strap

(5) Accessory shoe (JIS B7101)

Dimensions 180 mm (L) x 101 mm (H) x 54.5 mm (D)

Weight 760 g

Included accessories: Wrist strap, lens cap, lens hood, macro titler

Optional accessories: Universal Timer, wireless remote control block, wired remote control, carrying case, external DC power supply

EM-40XL

Lens: Sankyo varifocal lens with macro f/1.2; f = 9.2 to 37 mm (4X) 11 groups, 12 elements

Minimum focusing distance: 1.5 m for zoom shooting

5 cm for macro shooting
Filter diameter: 52 mm
Lens cap diameter: 54 mm

Included accessories: Wrist strap, lens cap

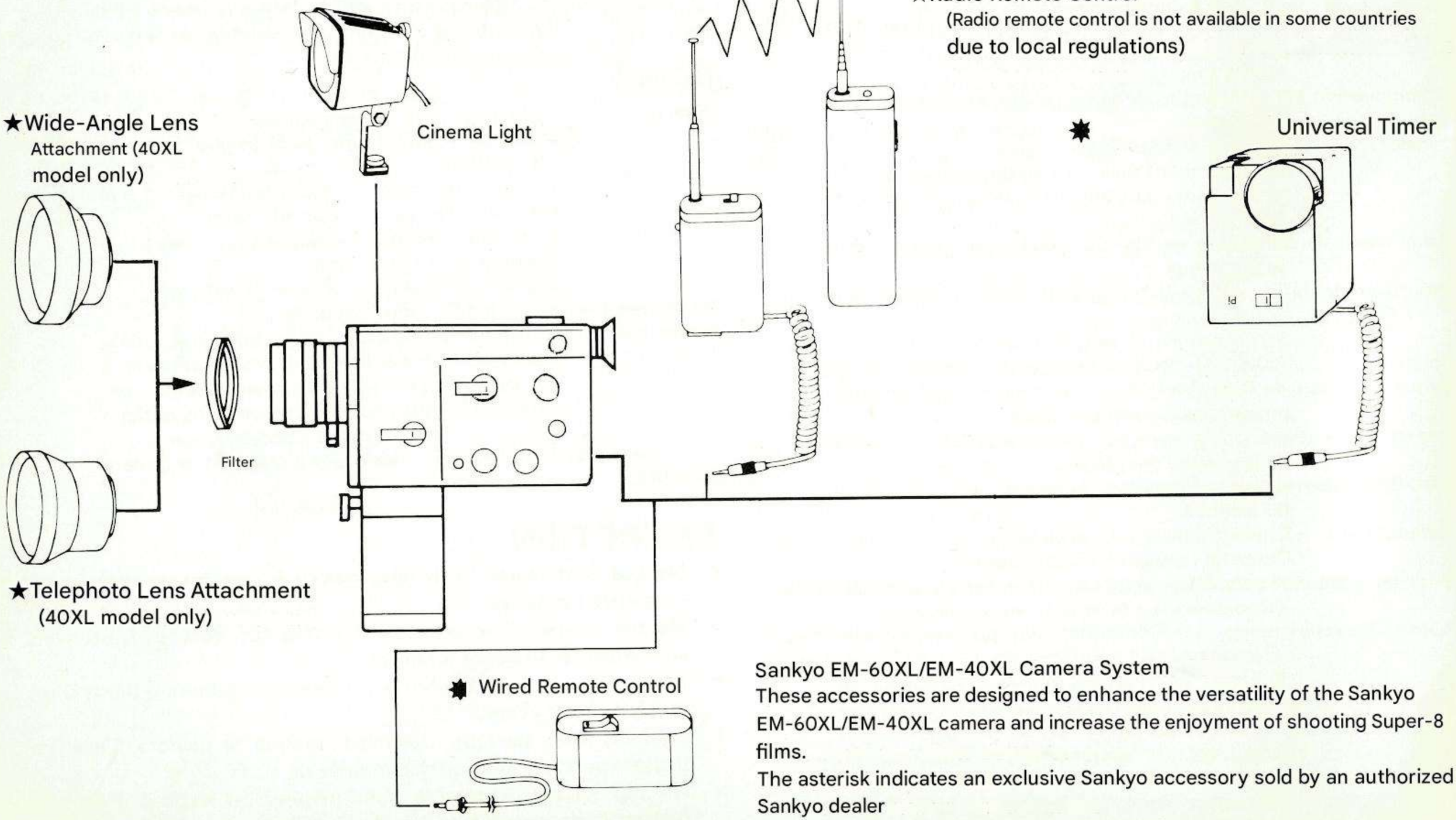
Optional accessories: Universal Timer programmer, lens hood, radio remote control, wired remote control, carrying case, external DC power supply, telephoto lens attachment, wide-angle lens attachment

Other features are identical to those of the EM-60XL camera.

CARE

- Do not store the camera in a location exposed to excessive humidity.
- Do not leave fingerprints on the lens, as they are difficult to remove.
- Wipe the film gate at regular intervals with a soft, dry cloth
- Remove the batteries from their compartment when the camera is not in use for several weeks at a time.
- Do not leave the camera in a place exposed to very high temperatures (inside a closed car, for example).

COMPLETE CONNECTION DIAGRAM



Sankyo EM-60XL/EM-40XL Camera System

These accessories are designed to enhance the versatility of the Sankyo EM-60XL/EM-40XL camera and increase the enjoyment of shooting Super-8 films.

The asterisk indicates an exclusive Sankyo accessory sold by an authorized Sankyo dealer

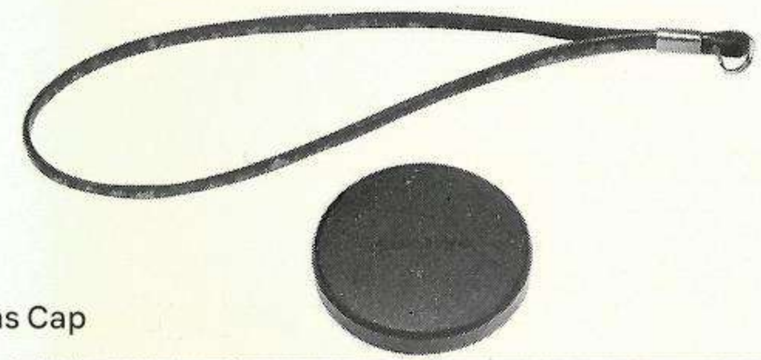
ACCESSORIES

*Not available in some countries due to local regulations.

Included Accessories

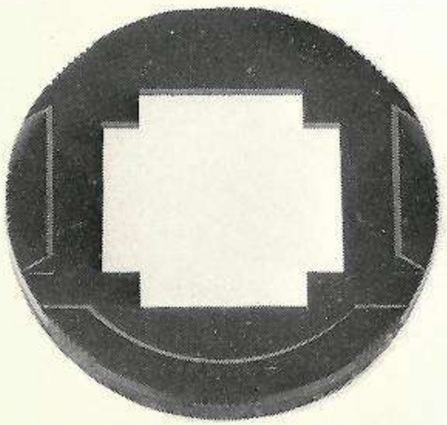
Lens Hood SFD-535 (60XL model only)

Wrist Strap



Lens Cap

Macro Titler STS-102 (60XL model only)



Optional Accessories

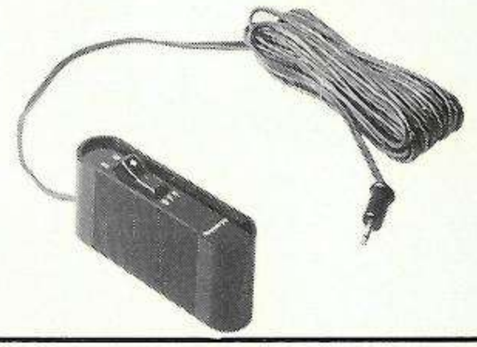
Universal Timer STC-632

Wireless Remote Control *

Telephoto Lens Attachment SLA-632 (40XL model only)

Wide-Angle Lens Attachment SLA-331 (40XL model only)

Wired Remote Control SRS-431



External DC Power Supply SBP-931

Lens Hood SFD-535 (40XL model only)

SEC-035 Carrying Case

Specifications and features subject to change without notice

Sankyo

Sankyo Seiki Mfg. Co., Ltd.

17-2, 1-Chome, Shinbashi, Minato-ku, Tokyo 105, Japan TEL (03)502-3711

Sankyo Seiki(America) Inc.
149 Fifth Avenue, New York, N.Y. 10010, U.S.A. TEL (212)260-0200
(Service and Distribution Centers)
1275 Valley Brook Avenue, Lyndhurst, New Jersey 07071, U.S.A. TEL (201)935-9414
Sankyo Seiki(America) Inc, West Coast Branch
991 Francisco Street, Torrance, California 90502, U.S.A. TEL (213)321-0320

Sankyo(Europe) Export und Import G.m.b.H.
Viersener Straße 58, 4 Düsseldorf 11, West Germany TEL 504066-69
Sankyo Seiki(Schweiz) AG.
Morgenstraße 70, CH-3018 Bern, Switzerland TEL 031-551195
Sankyo Seiki(Hong Kong) Co., Ltd.
Room No. 712 New World Centre, 20 Salisbury Road, Kowloon,
Hong Kong TEL 3-697511,696855
Perdagangan Sankyo Sdn. Bhd.
Wisma Central, Jalan Ampang, Kuala Lumpur, 04-07 Malaysia TEL 201980,208596

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